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CATALOG OF TRAINING AND EDUCATION SOURCES
IN CONCURRENT ENGINEERING

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Sarah H. Nash

November 1989

Prepared for
Office of the Assistant Secretary of Defense,
for Production and Logistics (OASD(P&L))

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13. ABSTRACT (Maximum 200 words) IDA Document D-666 contains information on training and education programs and their courses in concurrent engineering or in methods supporting concurrent engineering. Concurrent engineering is a systematic approach to the integrated, concurrent design of products and their related processes, including manufacture and support. This approach is intended to cause the developers, from the outset, to consider all elements of the product life cycle from conception through disposal, including quality, cost, schedule, and user requirements. This catalog contains 75 entries describing 119 programs with some entries having multiple programs. Of these, 6 are Associate Degree programs, 17 are Bachelor Degree Programs, 33 Master Degree programs, and 22 are Ph.D. programs. Three Certification programs are listed as well as 37 Continuing Education Programs and one post-graduate program.					
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CATALOG OF TRAINING AND EDUCATION SOURCES
IN CONCURRENT ENGINEERING

Sarah H. Nash

November 1989

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TABLE OF CONTENTS

	PAGE
Preface	ix
Introduction	xi
Additions/Update Form	xiii
 Air Force Institute of Technology (AFIT) Continuing Education Program	 1
Air Force Institute of Technology (AFIT) Master Degree Program	2
Alfred University	3
American Society for Quality Control (ASQC)	4
American Society of Mechanical Engineers (ASME)	5
American Supplier Institute (ASI)	6
Arizona State University Continuing Education Program	7
Arizona State University Graduate Program	8
Arthur Beard Engineers, Inc.	9
Association for Quality and Participation (AQP)	10
Clemson University	11
Cornell University Master Degree Program	12
Cornell University Continuing Education Program	13
Cornell University Dean's Certificate Program	14
Erie Community College	15
Films Incorporated	16
GOAL/QPC	17
George Washington University	18
Glendale Community College	19
Harnischfeger Institute	20
Hobbs Engineering Corporation	21
Institute for Competitive Design (ICD)	22
Institute of Industrial Engineers (IIE)	23
International Defense Electronics Assoc. (IDEA)	24
Juran Institute, Inc.	25
Kansas State University	26
Louisiana State University (LSU)	27
New Jersey Institute of Technology	28
New Mexico State University	29
North Carolina State University	30
Northeast Wisconsin Technical College	31
Oakland University	32
Pennsylvania State University	33
Research Triangle Institute (RTI)	34
STAT-A-MATRIX Institute Master Degree Program	35
STAT-A-MATRIX Institute Continuing Education Program	36

Society for Computer-Aided Engineering	37
Society of American Value Engineers (SAVE)	38
Society of Manufacturing Engineers (SME)	39
South Suburban College	40
Southern College of Technology	41
Tennessee Associates	42
Texas Tech University	43
Tulsa Junior College	44
Tustin Technical Institute, Inc.	45
University of Alabama in Huntsville	46
University of Arizona Continuing Education Program	47
University of Arizona Master Degree Program	48
University of Arkansas	49
University of Bridgeport	50
University of California at Los Angeles	51
University of Dayton	52
University of Florida	53
University of Idaho	54
University of Iowa	55
University of Maryland Master and Ph.D. Programs	56
University of Maryland - University College	57
University of Massachusetts at Amherst Industrial Engineering and Operations Research Programs	58
University of Massachusetts at Amherst Mechanical Engineering Programs	59
University of Pittsburgh	60
University of Rhode Island	61
University of Southern California	62
University of Utah	63
University of Wichita	64
University of Wisconsin - Madison Master Degree Program	65
University of Wisconsin - Madison Center for Quality and Productivity Improvement	66
University of Wisconsin - Madison Center for Value Engineering Research	67
University of Wisconsin - Milwaukee Continuing Education Program	68
Value Analysis, Inc.	69
Virginia Polytechnic Institute and State University Master Degree Program	70
Virginia Polytechnic Institute and State University Continuing Education Program	71
Waterbury State Technical College	72
West Virginia University	73
Western Illinois University	74
Worcester Polytechnic Institute	75

Offeror Type Index	77
Program Type Index	81
Geographic Index	85
Index of Courses Offered	89

PREFACE

The purpose of IDA Document D-666 *Catalog of Training and Education Sources in Concurrent Engineering*, is to forward information on training and education sources in concurrent engineering that is essentially unanalyzed and unevaluated, but that the DoD could use to develop its own training and education program. Additionally, it provides information to individuals interested in pursuing education in this emerging discipline. Because of time and financial limitations, no attempt was made to evaluate the courses or programs listed in this catalog.

This document was reviewed on November 1, 1989 by members of the CSED Peer review: Dr. Karen Gordon, Ms. Audrey A. Hook, Ms. Catherine W. McDonald, Ms. Katydean Price, Dr. Karen Richter, and Dr. Richard Wexelblat.

INTRODUCTION

This catalog lists training and education programs (and their courses) in concurrent engineering or in methods supporting concurrent engineering. Concurrent engineering is a systematic approach to the integrated, concurrent design of products and their related processes, including manufacture and support. This approach is intended to cause the developers, from the outset, to consider all elements of the product life cycle from conception through disposal, including quality, cost, schedule, and user requirements [Winner 88, p. v].¹ Related terms for concurrent engineering include systems engineering, simultaneous engineering, life-cycle engineering or producibility engineering. Its methods include statistical process control, design of experiments, design-for-assembly, value engineering, and quality function deployment.

One of the recommendations of a recent report to the Department of Defense (DoD) on concurrent engineering [Winner 88] was that in parallel with taking positive steps to encourage the use of concurrent engineering in weapons system acquisitions, the DoD should take steps to support the cultural and management changes necessary to gain the full potential benefits of concurrent engineering. These steps should include implementing an education and training program that starts with senior Office of the Secretary of Defense (OSD) acquisition managers and progresses to all levels of DoD's acquisition organization. This training and education catalog provides pointers to existing sources for education and training that the DoD could survey in creating its own program. Additionally, it provides information to individuals interested in pursuing education in this emerging discipline.

Data Collection Methodology

Several sources were consulted in compiling this catalog. An on-line search of the *Encyclopedia of Associations* revealed 19 organizations whose area of interest is quality, manufacturing, or other engineering disciplines related to concurrent engineering. Of these, eight contributed entries to the catalog. A total of 17 companies doing training in the area of concurrent engineering were identified from various sources (predominantly journals and newsletters). Of these, 12 contributed entries to the catalog. *Peterson's Graduate Programs in Engineering and Applied Sciences 1989* identified 126 universities with Industrial Engineering programs. Of these, 37 responded with entries. The American Society for Quality Control supplied a list of 77 degree programs in the Quality Sciences (one-year certificate programs, two-year associate degree programs, and four-year bachelor degree programs). Of these, 14 institutions provided entries. Finally, notices in the *Commerce Business Daily* and *Communications of the ACM* generated several additional entries.

Organization of Catalog

This catalog contains 75 entries describing 119 programs (some entries describe multiple programs). Of these, six are Associate Degree programs, 17 are Bachelor Degree programs, 33 are Master Degree programs, and 22 are Ph.D. programs. Three Certification programs are listed as well as 37 Continuing Education programs and one post-graduate program. Entries appear in alphabetical order by offeror name and are formatted as follows:

1. [Winner 88] *The Role of Concurrent Engineering in Weapons System Acquisition*, by Robert I. Winner, et al., Institute for Defense Analyses Report R-338, December 1988.

OFFEROR NAME: Name of offering institution

OFFEROR ADDRESS: Address of offering institution

OFFEROR TYPE: Type of institution offering the program (College, Consultant, Film and Video Distributor, Government, Non-Profit Educational Association, Not-for-Profit R&D Organization, Professional Society, Private Institute, or University)

PROGRAM TYPE: Associate Degree, Bachelor Degree, Master Degree, PhD Degree, Certificate Program, Continuing Education, or Post-Graduate Program.

PROGRAM TITLE: Formal or descriptive title of the program or course, if only one course is offered

ORIENTATION: Keywords that best describe the subject matter of the program and its emphases

POINT OF CONTACT: Name of person to contact for additional information

OFFEROR PHONE: Phone number of the point of contact including area code

AUDIENCE: Intended audience for the program

PREREQUISITES: Prerequisites or entrance requirements

COMMENTS: Any additional information not covered above

COURSES: Titles of specific courses offered

Four indexes conclude the catalog and offer access to the entries by (1) Type of Offeror, (2) Type of Program, (3) Geographic Area, and (4) Course Titles.

Additions/Updates Form

Since this IDA Document will be updated periodically, the author is interested in receiving additions, corrections, and updates to the entries contained in it. Please use this form to submit such information and mail it to

Sarah H. Nash
Institute for Defense Analyses
1801 N. Beauregard St.
Alexandria, VA 22311
(703) 824-5521.

OFFEROR NAME: Name of offering institution

OFFEROR ADDRESS: Address of offering institution

OFFEROR TYPE: Type of institution offering the program (College, Consultant, Film and Video Distributor, Government, Non-Profit Educational Association, Not-for-Profit R&D Organization, Professional Society, Private Institute, or University)

PROGRAM TYPE: Associate Degree, Bachelor Degree, Master Degree, PhD Degree, Certificate Program, Continuing Education, or Post-Graduate Program.

PROGRAM TITLE: Formal or descriptive title of the program or course, if only one course is offered

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POINT OF CONTACT: Name of person to contact for additional information

OFFEROR PHONE: Phone number of the point of contact including area code

AUDIENCE: Intended audience for the program

PREREQUISITES: Prerequisites or entrance requirements

COMMENTS: Any additional information not covered above

COURSES: Titles of specific courses offered

1. Offeror Name: Air Force Institute of Technology (AFIT) Continuing Education Program

Offeror Address: School of Systems and Logistics
Wright-Patterson AFB, OH 45433-6583

Offeror Type: Government

Program Type: Continuing Education

Program Title: Quality and Reliability; Value Engineering

Orientation: Value Engineering; Quality Improvement; Reliability; Maintainability; Statistical Process Control (SPC)

Point of Contact: Virgil Rehg; Jean S. Jines

Offeror Phone: (513) 255-7776; 3944

Audience: Individuals involved in design engineering, manufacturing, supply, human resource development, administration, and acquisition. Contracting Officers, Negotiators, Administrators, and Managers and others involved in contractual arrangements

Prerequisites: Knowledge of basic concepts of contract administration is presumed for Value Engineering Course. Prerequisites for other courses are on a course by course basis.

Comments: None.

Courses Offered:
Advanced Statistical Process Control
Contractual Aspects of Value Engineering
Quality Improvement Seminar
Quality and Productivity Improvement Team Process
Reliability
Reliability and Maintainability Design in System Acquisition
Reliability and Maintainability Research and Applications
Statistical Process Control
Total Quality

2. Offeror Name: Air Force Institute of Technology (AFIT) Master Degree Program

Offeror Address: School of Systems and Logistics
Wright-Patterson AFB, OH 45433-6583

Offeror Type: Government

Program Type: MS; Post-Graduate

Program Title: Graduate Logistics Management; Graduate Engineering Management

Orientation: Reliability; Maintenance; Quality Control Management; Reliability and Maintainability Management; Total Quality Management (TQM)

Point of Contact: Lt Col Phillip E. Miller; Lt Col Robert Materna; Dr. Ben Williams

Offeror Phone: (513) 255-4149; 5023

Audience: AFIT graduate and post-graduate students

Prerequisites: Knowledge of statistics (probability) and basic calculus skills required.

Comments: None.

Courses Offered:
Quality Control Management
Reliability and Maintainability Management
Reliability and Maintenance
Total Quality Management (TQM) Workshop (1-day)

3. Offeror Name: Alfred University

Offeror Address: Division of Industrial Engineering
P. O. Box 576
Alfred, NY 14802

Offeror Type: University

Program Type: BS; MS

Program Title: Industrial Engineering

Orientation: Industrial Engineering; Quality Control; Manufacturing; Operations Research; Simulation; Statistics; Human Factors; Solid Waste Disposal; Concurrent Engineering

Point of Contact: William O. Winchell, Chair

Offeror Phone: (607) 871-2129

Audience: Persons interested in integrating people, materials, and equipment, as well as the design and improvement of systems concurrently.

Prerequisites: For undergraduate program: see catalog. For graduate program: BS in engineering or science.

Comments: Also offered are short courses (one day to two weeks in duration) to meet needs of groups such as statistical process control, ergonomics, and computer integrated manufacturing. Unique courses for groups can be designed.

Courses Offered:
Engineering Economy
Engineering Statistics (includes design of experiments)
Industrial Statistical Decisions (includes quality function deployment)
Manufacturing I (includes value engineering)
Manufacturing II (includes simultaneous engineering, producibility engineering and design for assembly)
Statistical Process Control

4. Offeror Name: American Society for Quality Control (ASQC)

Offeror Address: 310 West Wisconsin Ave.
Milwaukee, WI 53203

Offeror Type: Professional Society

Program Type: Continuing Education

Program Title: Professional and Technical Development

Orientation: Quality Assurance; Statistical Process Quality Control; Taguchi;
Quality Function Deployment (QFD)

Point of Contact: Lisa Draeger

Offeror Phone: (414) 272-8575

Audience: Quality and reliability professionals; top and middle managers;
engineers. Contact Society directly.

Prerequisites: Varies by course. Contact Society directly.

Comments: Contact ASQC directly for course dates, location, etc.

Courses Offered:

- Customer-Driven Quality
- Design of Industrial Experiments
- Hoshin Planning
- Managing for Quality
- Procurement Quality
- Quality Audit
- Quality Costs
- Quality Engineering
- Quality Function Deployment
- Reliability Engineering
- Software Quality Assurance
- Statistical Process Quality Control

5. Offeror Name: American Society of Mechanical Engineers (ASME)

Offeror Address: Professional Development
345 East 47th St.
New York, NY 10017

Offeror Type: Professional Society

Program Type: Continuing Education

Program Title: Professional Development Program

Orientation: Flexible Manufacturing; Quality Control; Quality Engineering by Design; Taguchi; Statistical Design of Experiments; Value Engineering; Simultaneous Engineering

Point of Contact: Continuing Education Specialist

Offeror Phone: (212) 705-7121

Audience: Engineers; Project Managers; Team Members

Prerequisites: None stated.

Comments: None.

Courses Offered:
Measurement Uncertainty
Product Liability for Engineers
Project Management for Engineers
Quality Engineering by Design: The Taguchi Approach
Simultaneous Engineering Methodology
Statistical Design of Experiments
Value Engineering in Manufacturing

6. Offeror Name: American Supplier Institute (ASI)

Offeror Address: Center for Taguchi Methods
6 Parklane Blvd., Suite 411
Dearborn, MI 48126

Offeror Type: Private Institute

Program Type: Continuing Education

Program Title: Center for Taguchi Methods

Orientation: Statistical Process Control (SPC); Taguchi Methods; Quality Function Deployment (QFD); Standard Methods; Flexible Manufacturing; Computer-Wide Quality Control

Point of Contact: Cliff Carroll

Offeror Phone: (313) 336-8877

Audience: Supervisors; Managers; Engineers

Prerequisites: Vary by course. Consult course offerings and schedule for specific course requirements.

Comments: None.

Courses Offered:

- Advanced Quality Engineering
- Basic Statistical Concepts
- Design for Assembly
- Introduction to Quality Engineering
- On-line Quality Control
- Quality Function Deployment
- Quality Loss Function
- Reliability in Product Design and Testing
- Statistical Thinking for Manufacturing Process Control
- Taguchi Methods Executive Awareness
- Taguchi Methods Introduction to Measurement Engineering
- Taguchi Methods Problem Solving Workshop

7. Offeror Name: Arizona State University Continuing Education Program

Offeror Address: Center for Professional Development
College of Engineering and Applied Sciences
Tempe, AZ 85287-7506

Offeror Type: University

Program Type: Continuing Education

Program Title: Professional Development

Orientation: Design of Experiments; Optimization Responses; Taguchi; Statistical Process Control (SPC)

Point of Contact: Susan E. Alexander

Offeror Phone: (602) 965-1740

Audience: Varies by course. Contact University for additional information.

Prerequisites: None.

Comments: Videotaped segments from the 3rd Annual National Symposium: Statistics in Design and Process Control also available.

Courses Offered:
Basics of SPC
Design of Experiments, Optimization Responses, Surface Methodologies, and Taguchi Methodology
Managing the Quality Function
SPC and Design of Experiments for Managers
Statistics in Design and Process Control
Train the Trainer in Statistical Design of Experiments (DOX)

8. Offeror Name: Arizona State University Graduate Programs

Offeror Address: College of Engineering and Applied Sciences
Dept. of Industrial and Management Systems Engineering
Tempe, AZ 85287-5906

Offeror Type: University

Program Type: MS; PhD

Program Title: Industrial and Management Systems Engineering

Orientation: Quality Control; Reliability; Computer-Aided Processes

Point of Contact: James E. Bailey

Offeror Phone: (602)965-3185

Audience: Qualified students interested in pursuing a MS or PhD.

Prerequisites: Request specific information from Department directly.

Comments: None.

Courses Offered:
Advanced Quality Control
Computer-Aided Manufacturing and Control
Computer-Integrated Design Applications
Engineering Economy
Engineering Statistics
Integrated Production Control
Quality Management
Reliability, Availability, and Serviceability
Reliability Evaluation Techniques

9. Offeror Name: Arthur Beard Engineers, Inc.

Offeror Address: 144 Church Street, N.W.
Vienna, VA 22180

Offeror Type: Private Institute

Program Type: Continuing Education

Program Title: Value Engineering in Construction

Orientation: The application of value analysis (value engineering) methodology to planning, design and construction of buildings, highways, water and sewage treatment plants, and military construction.

Point of Contact: David C. Wohlscheid, PE, CVS

Offeror Phone: (703) 255-2470

Audience: Engineers; Architects; Project Managers; Construction Managers; Owners; Operators; and Government Officials

Prerequisites: (Desired by not required) - College Degree or Equivalent plus 3 years construction/design experience

Comments: By using "Live" Projects - cost savings ideas resulting from the workshops often offset the training costs by more than 20 to 1.

Courses Offered:
2 1/2 day workshop - Value Engineering During Design of Mass Transit Facilities
40-Hour Value Engineering Workshop
40-Hour Value Engineering Workshop for Highway Engineers
One day Executive Seminar on Value Engineering

10. Offeror Name: Association for Quality and Participation (AQP)

Offeror Address: 801-B West 8th St.
Cincinnati, OH 45203

Offeror Type: Professional Society

Program Type: Continuing Education

Program Title: Professional Education Series

Orientation: Kaizen; Continuous Improvement; Total Quality Management;
Employee Participation; Quality Circles

Point of Contact: Sara Olberding

Offeror Phone: (513) 381-1959

Audience: Varies by course.

Prerequisites: None stated.

Comments: None.

Courses Offered:
Activating Management Support
Basic Facilitator Development Course
Group Process Consultation: Applications for Participative Managers
Kaizen: The Process of Continuous Improvement
Self-Managing Teams: *Their Design and Implementation*
Total Quality Management Systems

11. Offeror Name: Clemson University

Offeror Address: Dept. of Industrial Engineering
102 Freeman Hall
Clemson, SC 29634-0920

Offeror Type: University

Program Type: BS; MS; PhD; Continuing Education

Program Title: Industrial Engineering

Orientation: Simulation; Human Factors; Quality Function Deployment (QFD);
Process Control; Design of Experiments; Modeling; Reliability

Point of Contact: Dr. D. L. Kimbler, PE

Offeror Phone: (803) 656-4716

Audience: Industrial and manufacturing engineers.

Prerequisites: Contact offeror for degree programs; prerequisites vary with
continuing education programs.

Comments: Continuing education emphases presently in quality.

Courses Offered:

Advanced Manufacturing Systems
Design of Human-Computer Systems
Discrete Systems Simulation
Human Factors Engineering
Industrial Quality Control
Quality Engineering
Reliability Engineering
Systems Modeling

12. Offeror Name: Cornell University Master Degree Program

Offeror Address: Master of Engineering Program
113 Hollister Hall
Ithaca, NY 14853

Offeror Type: University

Program Type: M. Eng

Program Title: Operations Research and Industrial Engineering (OR&IE)

Orientation: Manufacturing Systems Engineering; Production System Modeling and Scheduling; Manufacturing Processes

Point of Contact: Prof. Peter L. Jackson

Offeror Phone: (607) 255-4856

Audience: Matriculated students with undergraduate degree in engineering, math.

Prerequisites: Academic course requirements depending on field.

Comments: None.

Courses Offered: Design of Experiments
Statistical Process Control

13. Offeror Name: Cornell University Continuing Education Program

Offeror Address: Short Course Program on Manufacturing
304 Kimball Hall
Ithaca, NY 14853-1502

Offeror Type: University

Program Type: Continuing Education

Program Title: Cornell Manufacturing Engineering and Productivity Program
(COMEPP)

Orientation: Manufacturing Systems Engineering; Product Modeling and Design

Point of Contact: Margaret Dermott

Offeror Phone: (607) 255-7757

Audience: Engineers or engineering managers wishing to learn more of current
research and techniques in a given topic.

Prerequisites: None.

Comments: None.

Courses Offered:
Integrated Product Design
Managing the Next Generation of Manufacturing Technology
U.S. International Competitiveness

14. Offeror Name: Cornell University Dean's Certificate Program

Offeror Address: Cornell Manufacturing Engineering & Productivity Program
(COMEPP)
304 Kimball Hall
Ithaca, NY 14853-1502

Offeror Type: University

Program Type: Dean's Certificate

Program Title: Dean's Certificate in Manufacturing Engineering

Orientation: For Master of Engineering Students with a required core in manufacturing.

Point of Contact: Margaret Dermott

Offeror Phone: (607) 255-7757

Audience: Master of Engineering Students with a required core in manufacturing.

Prerequisites: Contact COMEPP for entrance requirements.

Comments: None.

Courses Offered:
Statistical Methods in Quality and Reliability Control
Statistics for Manufacturing

15. Offeror Name: Erie Community College

Offeror Address: Main and Youngs Roads
Williamsville, NY 14221

Offeror Type: College

Program Type: Associate Degree

Program Title: Management Engineering Technology

Orientation: Provides training in conducting capability studies and implementation of various control charts.

Point of Contact: Samuel J. Kassab

Offeror Phone: (716) 634-0800

Audience: Managers, Engineers, Production Personnel

Prerequisites: None.

Comments: Degree program in statistical process control currently under development.

Courses Offered:

Basic Statistics and Statistical Process Control - 30 hours
Statistical Process Control - 40 hours

16. Offeror Name: Films Incorporated

Offeror Address: 5547 N. Ravenswood Avenue
Chicago, IL 60640-9979

Offeror Type: Film and Video Distributor

Program Type: Continuing Education

Program Title: Quality/Productivity; The Deming Library; Create a Quality Training Program

Orientation: Quality/Productivity; Deming; Quality Training

Point of Contact: Business and Government Division

Offeror Phone: (800) 323-4222 x44

Audience: Organizational audiences interested in quality products and services; senior management and others concerned with competitive strategy.

Prerequisites: None.

Comments: None.

Courses Offered:
I Know It When I See It
If Japan Can...Why Can't We?
Juran on Quality Leadership
Manufacturing Strategy
The Deming Library
The Journey to Excellence
The Quality Connection
The Quality Man
Why Quality

17. Offeror Name: GOAL/QPC

Offeror Address: 13 Branch St.
Methuen, MA 01844

Offeror Type: Private Institute

Program Type: Continuing Education

Program Title: Total Quality Management

Orientation: Quality Function Deployment (QFD); Hoshin Planning; Continuous Improvement; Taguchi; Quality Engineering; Statistical Analysis

Point of Contact: Bob King

Offeror Phone: (508) 685-3900

Audience: Engineers; Managers; Quality Professionals; Technicians, etc. Refer to course catalog for target audiences of individual courses.

Prerequisites: None stated.

Comments: None.

Courses Offered:

- Advanced Quality Function Deployment
- Developing a Company-Wide Continuous Improvement Master Plan
- Hoshin Planning
- Hoshin Planning: Executive Overview
- Improving Quality and Productivity During Manufacturing Using Statistical Analysis
- Integrating Taguchi into Quality Engineering
- Methods for Management of Productivity and Quality
- Quality Function Deployment: Executive Overview
- Quality Function Deployment: Practitioner/Facilitator Course
- Seven Tools for Management and Planning
- Understanding Industrial Experimentation

18. Offeror Name: George Washington University

Offeror Address: School of Engineering and Applied Science
Continuing Engineering Education
Washington, D.C. 20052

Offeror Type: University

Program Type: Continuing Education

Program Title: Continuing Engineering Education

Orientation: Total Quality Management (TQM); Quality Function Deployment (QFD); Deming; Taguchi

Point of Contact: Merrill Ferber

Offeror Phone: (202) 994-8522

Audience: Managers and Engineers from manufacturing and service industries.

Prerequisites: None.

Comments: None.

Courses Offered:

Implementing Continuous Quality Improvement
Implementing Dr. Deming's Methods for Management of Productivity
and Quality
Implementing Statistical Process Improvement
Quality Function Deployment (QFD) and Taguchi Methods
Quality by Design
Reliability
Supplier Quality Management
Total Quality Management

19. Offeror Name: Glendale Community College

Offeror Address: 6000 West Olive Ave.
Glendale, AZ 85302

Offeror Type: College

Program Type: Associate in Applied Science (AAS)

Program Title: Quality Control Technology

Orientation: The Quality Control Technology Program provides instruction in state-of-the-art control and related technologies.

Point of Contact: Renault Catalano

Offeror Phone: (602) 435-3000

Audience: For entry-level skills in the quality control field or advancement to professional levels of employment as quality planners, analysts, engineers, etc.

Prerequisites: College level reading and writing skills; Math skills equivalent to two years of high school algebra.

Comments: Accredited by the American Society for Quality Control and North Central Association of Colleges and Secondary Schools. A unit of the Maricopa County Community Colleges.

Courses Offered: Contact College directly.

20. Offeror Name: Harnischfeger Institute

Offeror Address: 2712 S. 163 St.
New Berlin, WI 53151

Offeror Type: Private Institute

Program Type: Continuing Education

Program Title: Total Quality Assurance

Orientation: Product and Process Quality and Reliability; Supplier Quality Development; Taguchi; Statistical Process Control (SPC); Quality Function Deployment (QFD)

Point of Contact: None given.

Offeror Phone: (414) 797-6804

Audience: Manufacturing and marketing managers and design engineers.

Prerequisites: None stated.

Comments: Harnischfeger is a licensed provider of GOAL/QPC courses and materials.

Courses Offered:

Company Wide Quality Deployment
Concurrent Product Process Development
Quality Function Deployment
Short Cycle Manufacturing
Statistical Process and Controls
Taguchi Methods

21. Offeror Name: Hobbs Engineering Corporation

Offeror Address: Hobbs Engineering Corporation
10218 Osceola Court
Westminister, CO 80030

Offeror Type: Private Institute

Program Type: Continuing Education

Program Title: Cost Reduction and Reliability Improvements via Screening Technology

Orientation: Enhanced Environmental Stress Screening (ESS); Quality Improvement; Cost Reduction

Point of Contact: Virginia Hobbs

Offeror Phone: (303) 465-5988

Audience: Design; Manufacturing; Quality; and Reliability Personnel

Prerequisites: None.

Comments: The course offered presents techniques not generally known to the industry.

Courses Offered: Cost Reduction and Reliability Improvement via Screening Technology

22. Offeror Name: Institute for Competitive Design (ICD)

Offeror Address: 134 University Drive
Rochester, MI 48063

Offeror Type: Private Institute

Program Type: Continuing Education

Program Title: Design for Competitiveness

Orientation: Quality by Design; Design for Assembly/Manufacture; Total Life Cycle Costing; Simultaneous Engineering; Cost Reduction

Point of Contact: Bart Huthwaite

Offeror Phone: (313) 656-2195

Audience: Engineers

Prerequisites: None stated.

Comments: None.

Courses Offered:
On-going training/retraining in methodologies, materials, and processes
One-day overviews (on-site) for 1-30 people
Two-day hands-on workshop

23. Offeror Name: Institute of Industrial Engineers (IIE)

Offeror Address: 25 Technology Park/Atlanta
P.O. Box 6150
Norcross, GA 30091-0460

Offeror Type: Professional Society

Program Type: Continuing Education

Program Title: Industrial Engineering Seminars, In-House Training, and Conferences

Orientation: Quality Control; Total Quality Management (TQM); Reliability-Centered Maintenance (RCM); Competitive Manufacturing; Total Productive Maintenance (TPM); Service Quality; Life Cycle and Concurrent Engineering Methodologies; Value Engineering

Point of Contact: Special Projects Coordinator

Offeror Phone: (404) 449-0460

Audience: Varies by course. Consult individual course brochures.

Prerequisites: None stated.

Comments: Also offers several conferences including Inside America: Making Service Quality Work, Integrated Systems Conference, and International Industrial Engineering Conference.

Courses Offered:

Applying Just-in-Time in the American Environment
Improving Systems in the Service Industry
Improving the Bottom Line: Success Through Service Quality
Increasing White Collar Productivity: Lessons in Lifelong Quality Improvement
Introduction to Industrial Engineering
Maintenance Management for Productivity
Simulation: Improving Your Manufacturing Productivity
Time & Motion Study Fundamentals
Total Productive Maintenance
Total Quality and Productivity Management
Winning Manufacturing
Work Measurement Techniques

24. Offeror Name: International Defense Electronics Association (IDEA)

Offeror Address: Dept. CE
P.O. Box 3608 (3420 Kashiwa St.)
Torrance, CA 90510-3608

Offeror Type: Private Institute

Program Type: Conference

Program Title: Concurrent Engineering Conference

Orientation: Quality Management; Reliability Management; Manufacturing Management; Logistics Management; Integrated Product and Process Design; Taguchi; Quality Function Deployment (QFD); Design of Experiments; Design for Assembly; Computer-Aided Acquisition and Logistics Systems (CALS)

Point of Contact: None given.

Offeror Phone: (213) 534-3922

Audience: Quality, logistics, R&M, and manufacturing engineers, as well as project managers, executive management, and other professionals concerned with cost/schedule performance.

Prerequisites: None stated.

Comments: Co-sponsored by Technology Training Corp. and featuring Guest Expert Kenneth A. Crow.

Courses Offered:
Concurrent Engineering (CE)
Concurrent Engineering as a Cornerstone for TQM
Design for Maintainability and Life Cycle Costs
Design for Manufacturability/Assembly
Enabling Computer-Based Technologies
Getting Started - Minimizing and Risk
Government Initiatives
Organization and Re-Orientation - the Team Approach
Planning and Integration of CE

25. Offeror Name: Juran Institute, Inc.

Offeror Address: 11 River Road
P. O. Box 811
Wilton, CT 06897-0811

Offeror Type: Private Institute

Program Type: Continuing Education

Program Title: Quality Management

Orientation:

Point of Contact: Sales and Services Department

Offeror Phone: (203) 834-1700

Audience: Managers; Upper Managers; Supervisors; Technical Specialists

Prerequisites: None.

Comments: None.

Courses Offered:
Making Quality Happen: Upper Management's Role
Management of Quality
Planning for Quality

26. Offeror Name: Kansas State University

Offeror Address: Dept. of Industrial Engineering
Durland Hall
Manhattan, KS 66506-5101

Offeror Type: University

Program Type: BS; MS; PhD

Program Title: Industrial Engineering

Orientation: Manufacturing Systems Engineering; Engineering Management;
Operations Research; Ergonomics

Point of Contact: R. Michael Harnett

Offeror Phone: (913) 532-5606

Audience: Persons interested in pursuing the above degrees.

Prerequisites: Varies by program. Consult University catalog.

Comments: None.

Courses Offered: Contact University directly for course offerings.

27. Offeror Name: Louisiana State University

Offeror Address: Industrial Engineering Dept.
Room 3128, CEBA Building
Baton Rouge, LA 70803

Offeror Type: University

Program Type: BS; MS; PhD

Program Title: Industrial Engineering

Orientation: Program Management and Systems Analysis; Concurrent Engineering
Methodology/Process; Integrated Systems, Manufacturing Systems

Point of Contact: L. Ken Keyes

Offeror Phone: (504) 388-5112

Audience: Undergraduate and graduate students.

Prerequisites: Usual ones for state institution.

Comments: The Department of Industrial Engineering at LSU is moving in the new
direction of Integrated and Manufacturing Systems Engineering both
by new faculty recruitment and curriculum additions and modification.

Courses Offered:
AI/Expert Systems and Manufacturing
Manufacturing and Automation
Product Design for Manufacture
Program Management

28. Offeror Name: New Jersey Institute of Technology

Offeror Address: Center for Reliability Research
323 Martin Luther King Blvd.
Newark, NJ 07102

Offeror Type: University

Program Type: MS; PhD

Program Title: Reliability and Failure Mechanisms

Orientation: Quality; Reliability; Electrical Components; Stress Analysis;
Production Analysis; Packaging Analysis

Point of Contact: Dr. R. P. Misra

Offeror Phone: (201) 596-3511

Audience: Refer to Graduate catalog.

Prerequisites: Refer to Graduate catalog.

Comments: The Center also provides evaluation services and seminars to help New Jersey manufacturers develop more reliable and better quality products.

Courses Offered:

Advanced Microprocessor Systems
Electrochemistry: Principles and Applications
Electromagnetic Field Theory
Feedback Amplifiers I & II
Independent Research
Integrated Circuits I
Linear Systems
Master's Project
Master's Thesis
Noise in Electrical Circuits
Power System Dynamics and Stability
Protection of Power Systems
Random Signal Analysis I
Reliability in Electronics
Semiconductor Circuits
Semiconductor Devices
Seminar on Reliability Problems
Statistical Theory of Reliability and Applications

29. Offeror Name: New Mexico State University

Offeror Address: P.O. Box 30001
Department 4230
Los Cruces, NM 88003

Offeror Type: University

Program Type: BS; MS; PhD

Program Title: Industrial Engineering

Orientation: Industrial Engineering; Operations Research; Applied Statistics;
Engineering Management; Computer Modeling; Manufacturing
Engineering

Point of Contact: Dr. Satish J. Kamat

Offeror Phone: (505) 646-4923

Audience: Degree-seeking individuals.

Prerequisites: For MS I.E.: BS in engineering or science; For PhD: MS in
engineering or sciences.

Comments: None.

Courses Offered:
Advanced Quality Control
Introduction to Manufacturing
Methods Engineering
Production Systems Control
Production Systems Synthesis
Quality Control
Reliability
Systems Synthesis and Design

30. Offeror Name: North Carolina State University

Offeror Address: Industrial Engineering
Box 7906
Raleigh, NC 27695-7906

Offeror Type: University

Program Type: MS; PhD

Program Title: Industrial Engineering

Orientation: Manufacturing Systems; Production Systems; Facilities Design;
Economic Decision Analysis

Point of Contact: Dr. Richard G. Pearson

Offeror Phone: (919) 737-2362

Audience: Graduate students – MS and PhD

Prerequisites: Undergraduate majors in behavioral, physical, and mathematical sciences with preparation in mathematics, computer science, and statistics. GRE (Graduate Record Examination) (Verbal + Quantitative) of 1100; GPA (Grade Point Average) of 3.0

Comments: Contact offeror for more complete list of courses.

Courses Offered:
Advanced Manufacturing Processes
Computer Integration in Manufacturing Systems
Design of Production Systems
Quality Engineering
Reliability Engineering

31. Offeror Name: Northeast Wisconsin Technical College

Offeror Address: 2740 W. Mason St.
P.O. Box 19042
Green Bay, WI 54307-9042

Offeror Type: College

Program Type: Associate Degree

Program Title: Quality Assurance Technician

Orientation: Quality Technician who uses codes, specifications, and procedures to ensure quality parts by process control, inspection, and vendor relations; auditing; reliability; inspection and report writing.

Point of Contact: John Pogorelc

Offeror Phone: (414) 498-5663

Audience: Post high school students and individuals employed in inspection or quality functions in industry.

Prerequisites: High school diploma.

Comments: None.

Courses Offered:
Inspection Standards
Practical Problems in Quality Assurance
Quality Concepts
Quality Control Theory and Planning
Statistical Process Control

32. Offeror Name: Oakland University

Offeror Address: School of Engineering and Computer Science
Dept. of Electrical and Systems Engineering
Rochester, MI 48309

Offeror Type: University

Program Type: BS; MS; PhD

Program Title: Systems Engineering

Orientation: Dynamic Systems and Control; Robotics and Manufacturing Systems;
Statistical Quality Control

Point of Contact: Naim A. Kheir

Offeror Phone: (313) 370-2177

Audience: Qualified applicants interested in pursuing the above degrees.

Prerequisites: Varies by degree. Consult University.

Comments: For graduate offerings, consult mini-graduate catalog.

Courses Offered:
Automatic Control Systems
Engineering Probability and Statistics
Foundations of Computer-Aided Design
Modern Control Design
Production Systems
Statistical Quality Control
Systems Design and Optimization

33. Offeror Name: Pennsylvania State University

Offeror Address: Industrial and Management Systems Engineering
207 Hammond Building
University Park, PA 16802

Offeror Type: University

Program Type: MS; M.Eng; PhD

Program Title: Manufacturing Systems Engineering

Orientation: Engineering Design; Industrial Production; Flexible Manufacturing

Point of Contact: Dr. Matthew Rosenshine

Offeror Phone: (814) 863-2356

Audience: MS and PhD candidates

Prerequisites: BS degree from an accredited institution. Admission requirements vary.

Comments: Contact offeror for admission requirements, additional courses, and degree requirements.

Courses Offered:

Advanced Quality Control
Computer-Aided Design for Manufacturing
Engineering for Production
Experimental Design in Engineering
Quality Control and Reliability
Reliability Engineering

34. Offeror Name: Research Triangle Institute (RTI)

Offeror Address: Center for Digital Systems Research
P.O. Box 12194
Research Triangle Park, NC 27709

Offeror Type: Not-for-Profit R&D Organization

Program Type: Continuing Education

Program Title: Training courses in the use of Architecture Design and Assessment System (ADAS)

Orientation: Training courses in the use of ADAS, an integrated set of computer-aided engineering tools which support the synthesis and analysis of electronic systems.

Point of Contact: Barbara Huss

Offeror Phone: (919) 541-7436

Audience: Engineers and computer scientists who design and analyze advanced computer systems for signal processing and general computing applications.

Prerequisites: None.

Comments: Courses offered continuously. Contact RTI for dates and registration information.

Courses Offered:
ADAS Management Overview Course
ADAS User Training Course

35. Offeror Name: STAT-A-MATRIX Institute Master Degree Program

Offeror Address: 2124 Oak Tree Rd.
Edison, NJ 08820

Offeror Type: Private Institute

Program Type: MS

Program Title: Quality Management

Orientation: Quality Management

Point of Contact: Judith Marash

Offeror Phone: (201) 548-0600

Audience: Qualified applicants interested in pursuing a MS in Quality Management.

Prerequisites: BS degree with satisfactory GPA (Grade Point Average). Three years of full-time work experience by the beginning of the semester in which the student begins graduate studies.

Comments: Each student is expected to follow a course of study in six semesters over a two- to three-year period.

Courses Offered:

Philosophies of Quality Management
Quality Assurance in Regulated and Non-Regulated Industries
Quality Auditing as a Management Function
Quality Engineering Management
Statistical Analysis for Quality Management
Strategies for Quality Management

36. Offeror Name: STAT-A-MATRIX Institute Continuing Education Program

Offeror Address: 2124 Oak Tree Rd.
Edison, NJ 08820

Offeror Type: Private Institute

Program Type: Continuing Education

Program Title: Quality Management

Orientation: Vendor Quality Improvement; Supplier Evaluation; Taguchi; Deming; Juran; Crosby; Total Quality Management (TQM); Sampling; Statistical Process Control(SPC); Auditing; Reliability Engineering; Maintainability; Software Quality

Point of Contact: Judith Marash

Offeror Phone: (201) 548-0600

Audience: Varies by course. Contact Institute for specific course information.

Prerequisites: Vary by course. Contact Institute for specific course information.

Comments: None.

Courses Offered:

Advanced Auditor Training Effective Communication and Auditing Techniques
Auditing Nuclear Quality Assurance Programs/Lead Auditor Training
Effective Supplier Evaluation and Auditing
Implementing Statistical Process Control
Implementing a Vendor Quality Improvement System
Intermediate SPC
Overview of Quality Engineering Techniques
Practical Experiment Design Beyond Taguchi Techniques
Practical Reliability Engineering Methods
Practical Sampling Techniques
Process Improvement by Acceptance Sampling
Quality Assurance Systems Requirements, 1989 and Beyond
Quality Assurance for Computer Software
Quality Assurance for the Operating Phase of Nuclear Power Plants
Quality Program Preparation and Audit
Refresher for CQE Examination
Refresher for CRE Examination Reliability Engineering
Refresher for Certified Auditor Examination
SPC for Continuous Process
SPC for Job Shops and Short Runs
Systems Reliability and Maintainability
Teachings of the Gurus: Deming, Juran and Crosby
Total Quality Management Through STAT-A-MATRIX

37. Offeror Name: Society for Computer-Aided Engineering

Offeror Address: 5411 East State Street
Rockford IL 61108-2378

Offeror Type: Non-Profit Educational Association

Program Type: Continuing Education

Program Title: CALS (Computer-Aided Acquisitions and Logistics System)
Concurrent Engineering

Orientation: Concurrent engineering requirements defined by CALS and DoD initiatives.

Point of Contact: Leah Pitterle

Offeror Phone: (815) 399-8700

Audience: Engineers, logisticians, software and hardware vendors, senior level contractors, subcontractors, and DoD administrators involved in contracts requiring concurrent engineering.

Prerequisites: None.

Comments: None.

Courses Offered: None listed.

38. Offeror Name: Society of American Value Engineers (SAVE)

Offeror Address: 60 Revere Dr.
Suite 500
Northbrook, IL 60062

Offeror Type: Professional Society

Program Type: Continuing Education

Program Title: Value Engineering

Orientation: Value Engineering; Cost Reduction; Cost Improvement;
Manufacturing; Value Analysis; Video Tapes; Training Films;
Correspondence Courses; Independent Study Courses

Point of Contact: None given.

Offeror Phone: (312) 480-1730

Audience: None stated.

Prerequisites: None stated.

Comments: Also publishes several books and *Value World: The Journal of Value Technology for the Society of American Value Engineers*.

Courses Offered:

Basic Value Analysis (Independent Study Course administered by the Miles Foundation)
Contractual Aspects of Value Engineering (Video Tape)
Evaluation of Function, Cost & Worth (Training Film)
Introduction to Value Analysis & Value Engineering
Introduction to Value Analysis and Value Engineering for Architects, Engineers, and Builders (Independent Study Course)
Keeping the Competitive Edge with Value Analysis (Video Tape)
Manufacturing: A Competitive Weapon (Video Tape)
Value: The Success Criterion (Video Tape)
Value Engineering - A Course for Educational and Professional Development (Video Tape)
Value-Oriented Creative Thinking (Training Film)
Value-Oriented Paperwork Management (Training Film)

39. Offeror Name: Society of Manufacturing Engineers (SME)

Offeror Address: One SME Dr.
P.O. Box 930
Dearborn, MI 48121-0930

Offeror Type: Professional Society

Program Type: Continuing Education

Program Title: Product Design for Manufacturing

Orientation: Simultaneous Engineering; Design for Assembly; Design for Manufacturing; Design for Manufacturability; Inspection; Quality Control; Statistical Process Control (SPC); Design of Experiments

Point of Contact: Market Planning and Communications

Offeror Phone: (313) 271-1500

Audience: Varies by course.

Prerequisites: None stated.

Comments: None.

Courses Offered:
Automated Quality
Automatic Testing and Inspection
Computer-Aided Engineering for Product Design
Design for Manufacturability
Product Design for Assembly
Product Design for Manufacturing
Quality Control in Automation
Simultaneous Engineering
Statistical Design of Experiments
Statistical Process Control (SPC)
Statistical Process Planning

40. Offeror Name: South Suburban College

Offeror Address: 15800 South State St.
South Holland, IL 60473

Offeror Type: College

Program Type: Associate of Applied Science (AAS)

Program Title: Materials Production Control

Orientation: Statistical Process Controls; Purchasing; Materials Handling and Packaging; Materials Management, Scheduling, and Planning

Point of Contact: Daniel Segebarth

Offeror Phone: (312) 596-2000, x287

Audience: Community college students (high school graduates and adult learners).

Prerequisites: High school diploma.

Comments: Formerly Thornton Community College.

Courses Offered: Statistical Process Control I

41. Offeror Name: Southern College of Technology

Offeror Address: South Marietta Parkway
Marietta, GA 30060

Offeror Type: College

Program Type: BS

Program Title: Industrial Engineering Technology; Quality Assurance

Orientation: Total Quality Management (TQM); Statistical Management;
Statistical Process Control (SPC)

Point of Contact: Lawrence S. Aft

Offeror Phone: (404) 424-7243

Audience: The College offers both day and evening degree programs. The programs seek to introduce students to research that is industrially, technically, or applications focused.

Prerequisites: Consult college catalog for admissions information.

Comments: Southern College of Technology is a senior college in the university system of Georgia.

Courses Offered:

Analysis of Technical Data
Metrology
Modern Trends in QA
Probability and Statistics I
Quality Assurance Applications
Quality Assurance Concepts
Quality Assurance Management
Statistical Quality Control
Testing and Quality Control

42. Offeror Name: Tennessee Associates

Offeror Address: P.O. Box 710
Alcoa, TN 37701

Offeror Type : Private Institute

Program Type: Continuing Education

Program Title: Continuous Improvement of Quality and Productivity

Orientaton: Continuous Improvement of Products and Services; Statistical Tools;
Designing for Quality

Point of Contact: J. Mark Douglas

Offeror Phone: (800) 426-4121

Audience: Companies interested in becoming more world competitive in quality
and productivity.

Prerequisites: None stated.

Comments: None.

Courses Offered:
Creating the Quality System
Designing for Quality
Executive Course in Managing for Consistency
Managing for Consistency
Quality Management for Marketing and Sales
Team Facilitator Training

43. Offeror Name: Texas Tech University

Offeror Address: Dept. of Industrial Engineering
P.O. Box 4130
Lubbock, TX 79409

Offeror Type : University

Program Type: BS; MS; PhD

Program Title: Industrial Engineering

Orientaton: Manufacturing; Process and Quality Control; Human Factors;
Management Science

Point of Contact: Tom B. Leamon

Offeror Phone: (806) 742-3543

Audience: Engineers and Scientific Personnel.

Prerequisites: Varies by course. Consult University catalog.

Comments: None.

Courses Offered:

Engineering Statistics
Manufacturing Processes I
Manufacturing Processes II
Quality Assurance and Engineering Statistics II
Reliability Assurance and Engineering Statistics III

44. Offeror Name: Tulsa Junior College

Offeror Address: Northeast Campus
3727 E. Apache
Tulsa, OK 74115

Offeror Type : College

Program Type: Associate in Applied Science; Certificate in Achievement in Quality Control

Program Title: Quality Control Technology

Orientaton: This program prepares the student without previous experience in quality control for an entry level position as a quality control technician. A student with previous experience will be able to upgrade his skills and knowledge in order to qualify for advancement in the field.

Point of Contact: Sam Redding; John Kahre

Offeror Phone: (918) 834-5071

Audience: This program is designed for both individuals without experience in the field as well as those needing to upgrade training for career advancement.

Prerequisites: High school diploma or equivalent; ACT or SAT.

Comments: None.

Courses Offered:

Blueprint Reading
Fundamentals of Dimensional Measurements
Inspection Principals
Introduction to Quality Control
Non-Destructive Examination Principles
Quality Costs, Surveys, and Audits
Quality Standards and Specifications
Statistical Quality Control

45. Offeror Name: Tustin Technical Institute, Inc.

Offeror Address: 22 East Los Olivos Street
Santa Barbara, CA 93105

Offeror Type : Private Institute

Program Type: Continuing Education

Program Title: Environmental Engineering

Orientaton: To further the education of environmental, quality, and reliability engineers employed by government and industry, such that they can contribute to increasing the reliability of equipment.

Point of Contact: Brian Slattery

Offeror Phone: (805) 682-7171

Audience: Environmental, quality and reliability engineers employed by government and industry.

Prerequisites: While most attendees have BS or MS degrees in some field of engineering, some of their courses benefit non-degreed people.

Comments: None.

Courses Offered:

Automobile Safety (Crash) Testing
Automotive Vibration and Shock Testing and Measurement
Avoiding Thermal Overdesign
Climatic Environmental Test Methods
High-Level Acoustic Testing
Mechanical Dynamic Measurements
Protective Packaging
Reducing Noise and Vibration
Thermal Climatic Testing
Vibration and Shock Test Fixture Design
Vibration and Shock Testing, Measurement, Analysis and Calibration

46. Offeror Name: University of Alabama in Huntsville

Offeror Address: College of Engineering
Dept. of Industrial and Systems Engineering
Huntsville, AL 35899

Offeror Type : University

Program Type: MS; PhD

Program Title: Industrial and Systems Engineering

Orientaton: Applied Statistics; Engineering Management; Manufacturing Systems;
Operations Research; Product Assurance Engineering; System
Engineering

Point of Contact: Dr. Thomas P. Tytula

Offeror Phone: (205) 895-6637

Audience: Practitioners in industry and government.

Prerequisites: Master's - 3.0 GPA (Grade Point Average); GRE (Graduate Record
Examination) of 1000 (Verbal + Quantitative) with a minimum of 500
on Quantitative; Mathematics through calculus; six hours of applied or
mathematical statistics; graduate of an engineering program
accredited by the Accreditation Board for Engineering and
Technology.

Conditional admission possible after department review.

Comments: The Department has a contract with the U.S. Air Force to train
Product Assurance Engineering Interns. Consult University catalog
for additional details.

Courses Offered:

- Design and Analysis of Experiments
- Engineering Reliability
- Modern Manufacturing/Production Systems
- Product Assurance
- Quality Assurance
- Reliability, Availability, and Maintainability
- Statistical Quality Control

47. Offeror Name: University of Arizona Continuing Education Program

Offeror Address: Aerospace and Mechanical Engineering Dept.
Bldg. 16, Room 200-B
Tucson, AZ 85721-0663

Offeror Type : University

Program Type: Continuing Education

Program Title: Reliability Engineering

Orientaton: Reliability Engineering; Maintainability Engineering; Probabilistic Design for Reliability

Point of Contact: Dr. Dimitri Kececioglu

Offeror Phone: (602) 621-2495

Audience: Scientists; Engineers; Managers.

Prerequisites: Knowledge of statistics; probability and undergraduate college mathematics is desirable but not required.

Comments: None.

Courses Offered:
Annual Reliability Engineering and Management Institute
Annual Reliability Testing Institute

48. Offeror Name: University of Arizona Master Degree Program

Offeror Address: Reliability Engineering
Bldg. 16, Room 200B
Tucson, AZ 85721-0663

Offeror Type : University

Program Type: MS

Program Title: Reliability Engineering

Orientaton: Reliability Engineering; Quality Control; Probabilistic Design;
Maintainability Engineering; Product Assurance

Point of Contact: Dr. Dimitri Kececioglu

Offeror Phone: (602) 621-2495

Audience: Holders of Bachelor's Degree in Engineering, Mathematics, or Physics
interested in pursuing MS degree.

Prerequisites: Bachelor's Degree in Engineering, Mathematics, or Physics.

Comments: Courses in Reliability Engineering are videotaped on request and
rights to them are sold at nominal cost. Studies toward a PhD may
also be pursued in Engineering with Reliability Engineering minor by
those who qualify.

Courses Offered:
Advanced Engineering Quality Control
Advanced Reliability Engineering (Maintainability Engineering)
Engineering Quality Control
Reliability Engineering
Reliability Testing

49. Offeror Name: University of Arkansas

Offeror Address: Dept. of Industrial Engineering
University of Arkansas
Fayetteville, AR 72701

Offeror Type : University

Program Type: BS; MS; PhD

Program Title: Industrial Engineering and Operations Research

Orientaton: Computer-Integrated Manufacturing; Simulation; Human Factors/Ergonomics; Manufacturing Automation; Material Handling; Artificial Intelligence; Methods Engineering; Quality Control/Reliability; Production Planning and Control; Computer-Assisted Processes

Point of Contact: Eric M. Malstrom, Professor and Head

Offeror Phone: (501) 575-6029

Audience: Prospective graduate and undergraduate students.

Prerequisites: Entry in graduate program requires a Bachelor of Science in Engineering.

Comments: None.

Courses Offered:

Artificial Intelligence
Computer-Assisted Processes
Computer-Integrated Manufacturing
Human Factors/Ergonomics
Manufacturing Automation
Material Handling
Methods Engineering
Production Planning and Control
Quality Control/Reliability
Simulation

50. Offeror Name: University of Bridgeport

Offeror Address: Dept. of Manufacturing, Industrial and Management Engineering
College of Science and Engineering
Bridgeport, CT 06601

Offeror Type : University

Program Type: MS

Program Title: Management Engineering

Orientaton: Contemporary problems of the engineering manager. Curriculum provides for six required courses and four electives to suit career objectives.

Point of Contact: Prof. Phylipp Dilloway, PE

Offeror Phone: (203) 576-4153

Audience: Practicing engineers who are seeking management responsibility, intend to remain in engineering, and wish to prepare for a more specialized technology management responsibility by academic means other than the MBA degree.

Prerequisites: Undergraduate degree in engineering or hard science. TOEFL (Test of English as a Foreign Language) of 550 or better for international students and GMAT (Graduate Management Aptitude Test) for all. Undergraduate GPA (Grade Point Average) of 2.5 or better.

Comments: None.

Courses Offered: Contact Department directly.

51. Offeror Name: University of California at Los Angeles

Offeror Address: Dept. of Business, Engineering, and Management
10995 Le Conte Avenue, Room 515
Los Angeles, CA 90024-2883

Offeror Type : University

Program Type: Continuing Education

Program Title: UCLA Extension Short Courses

Orientaton: Total Quality Management (TQM); Concurrent Engineering

Point of Contact: Marcus A. Hennessy, Marketing Assistant

Offeror Phone: (213) 825-1047

Audience: Scientists; Engineers; Managers

Prerequisites: BS in Engineering or Science; or equivalent experience in or relating to the course topic unless otherwise stated.

Comments: Contact Offeror for specific information on dates courses offered and possibility of on-site courses tailored to organization needs.

Courses Offered:

Advanced Robotics: Analysis and Simulation
Applied Maintainability, Availability and Operational Readiness Engineering
Applied Reliability Engineering and Testing
Computer-Aided Acquisition and Logistic Support (CALS): Elements and Applications
Concurrent Engineering and Factory Automation
Integrated Logistic Support (ILS): Elements and Application
Manufacturing Systems Design and Evaluation
Program and Project Management: Principles and Practice
System Safety Principles and Practice
Systems Engineering and Integration (SE&I)
Total Quality Management (TQM): Principles, Tools and Applications

52. Offeror Name: University of Dayton

Offeror Address: Division of Special Programs and Continuing Education
Kettering Laboratories, KL-105, 300 College Park
Dayton, OH 45469-0001

Offeror Type : University

Program Type: Continuing Education

Program Title: Special Programs

Orientaton: Reliability Engineering; Product Assurance

Point of Contact: Earl Iselin

Offeror Phone: (513) 229-4632

Audience: Vice Presidents; directors; managers; supervisors; and engineers who are responsible for product reliability, maintainability, quality assurance, design and testing.

Prerequisites: Bachelor's Degree in Engineering; Mathematics; Physics; or their equivalent. Some familiarity with probability and statistics is desired but not required.

Comments: None.

Courses Offered:
Applied Maintainability and Availability Engineering
Applied Reliability Engineering

53. Offeror Name: University of Florida

Offeror Address: Dept. of Industrial & Systems Engineering
University of Florida
Gainesville, FL 32611

Offeror Type : University

Program Type: BS; MS; PhD

Program Title: Options in Systems Engineering at the Bachelor's; Master's, and PhD level

Orientaton: Systems Engineering; Systems Design; Manufacturing Systems Engineering

Point of Contact: D. Jack Elzinga

Offeror Phone: (904) 392-1464

Audience: Prospective students with interest in education in quantitative techniques that address the formulation and solution of systems analysis and design problems.

Prerequisites: Undergraduate - completion of two years pre-engineering with 2.5/4 GPA (Grade Point Average) and 2.5/4 GPA (Grade Point Average) in calculus and physics; Master's - College degree with 3.0/4 GPA (Grade Point Average) and 1000 GRE (Graduate Record Examination).; PhD - Masters degree and 1200 GRE (Graduate Record Examination).

Comments: None.

Courses Offered: Digital Simulation Techniques
Reliability Engineering
Stochastic Systems Analysis

54. Offeror Name: University of Idaho

Offeror Address: 1776 Science Center Drive
P.O. Box 50778
Idaho Falls, ID 83405

Offeror Type : University

Program Type: BS and Certificate Program

Program Title: Quality Assurance

Orientaton: Quality Assurance

Point of Contact: Marvin E. Eld

Offeror Phone: (208) 526-1388

Audience: Programs supply personnel for the eastern Idaho industrial community.

Prerequisites: College Algebra and College Statistics.

Comments: None.

Courses Offered:
Contact University directly.

55. Offeror Name: University of Iowa

Offeror Address: Dept. of Industrial and Management Engineering
Room 4131 EB
Iowa City, IA 52242

Offeror Type : University

Program Type: BSc; MSc; PhD; Continuing Education

Program Title: Industrial and Management Engineering

Orientaton: Manufacturing; Design; Artificial Intelligence; Quality Control

Point of Contact: Dr. Andrew Kusiak

Offeror Phone: (319) 335-5934

Audience: Undergraduate and graduate students.

Prerequisites: GPA (Grade Point Average) of 3.0 and GRE (Graduate Record Examination) (Quantitative + Verbal) of 1100 for graduate students.

Comments: None.

Courses Offered:
Artificial Intelligence in Manufacturing
Computer-Integrated Manufacturing
Design of Work Methods
Manufacturing Systems
Production Systems
Quality Control
Reliability Theory and Practice

56. Offeror Name: University of Maryland Master and PhD Programs

Offeror Address: Center for Reliability Engineering
College of Engineering
College Park, MD 20742-2111

Offeror Type : University

Program Type: MS; PhD

Program Title: Reliability Engineering

Orientaton: Designing for reliability and maintainability; Producibility; Statistical Process Control (SPC);

Point of Contact: Marvin L. Roush

Offeror Phone: (301) 454-1951

Audience: Qualified students holding a BS degree in any of the engineering and science areas from accredited programs.

Prerequisites: Bachelor's degree in science, mathematics, or engineering from a regionally accredited college or university with a minimum GPA (Grade Point Average) of 3.0; 3 letters of recommendation; statement of career objectives; and an official transcript of previous college courses.

Comments: None.

Courses Offered:

- Advanced Decision Theory
- Advanced Product Assurance
- Advanced Reliability Engineering
- Applied Probability and Statistics
- Basic Reliability Analysis
- Basic Reliability Engineering
- Bayesian Reliability Analysis
- Failure Analysis Lab.
- Failure Mechanisms and Effects Lab.
- Human Reliability Analysis
- Methods of Engineering Analysis
- Physics of Failure of Solid State Devices
- Quantitative Approach to Software Management and Engineering
- Reliability Engineering Seminar
- Reliability and Maintainability Engineering
- Reliable Design of Electronic Packages
- Risk Assessment for Engineers
- Special Problems in Reliability Engineering
- Structural Reliability
- System Safety Engineering

57. Offeror Name: University of Maryland - University College Continuing Education Programs

Offeror Address: University College
University Blvd. at Adelphi Road
College Park MD 20742-1668

Offeror Type : University

Program Type: Continuing Education

Program Title: Professional Development

Orientaton: Reliability Engineering; Taguchi Methods

Point of Contact: Richard Jaffeson

Offeror Phone: (301) 985-7206

Audience: Managers and Engineers.

Prerequisites: None stated.

Comments: Center for Professional Development can conduct most course offerings at your organization.

Courses Offered:

Applied Reliability, Life, and Accelerated Testing
Mechanical Reliability and Probabilistic Design for Reliability
Microprocessor Programs and Methods for Integrated Logistics
Systems
Reliability of Repairable Systems: Analysis and Applications

58. Offeror Name: University of Massachusetts at Amherst Industrial Engineering and Operations Research Programs

Offeror Address: Dept. of IE/OR
Room 114, Marston Hall
Amherst, MA 01003

Offeror Type : University

Program Type: BS, MS; PhD

Program Title: Industrial Engineering and Operations Research

Orientaton: Operations Research; Applied Probability; Engineering Management;
Production Systems; Manufacturing Engineering; Human Factors

Point of Contact: Graduate Program Director

Offeror Phone: (413) 545-2851

Audience: Qualified applicants.

Prerequisites: Vary by program. Consult catalog directly.

Comments: None.

Courses Offered:
Advanced Biometry
Advanced Quality Control
Basic Probability for Engineers
Design for Production
Design of Experiments
Design of Production Systems
Experimental Design
Intermediate Biometry
Probability and Statistics
Queuing and Quality Control
Statistical Quality Control

59. Offeror Name: University of Massachusetts at Amherst Mechanical Engineering Programs

Offeror Address: Dept. of Mechanical Engineering
Mechanical Design Automation (MDA) Lab
Amherst, MA 01003

Offeror Type : University

Program Type: MS; PhD

Program Title: Mechanical Engineering

Orientaton: Mechanical Design Automation; Computer-Aided Design (CAD);
Engineering Design Features

Point of Contact: John R. Dixon

Offeror Phone: (413) 545-4242

Audience: Students who qualify for entry in a graduate-level program in mechanical engineering with special interest and aptitude in design, manufacturing, and computer-related topics.

Prerequisites: Entrance requirements as defined by the Department of Mechanical Engineering and the Graduate School at the University. Participation in MDA Lab research for graduate students is by arrangement with Lab director.

Comments: Highly competitive graduate research program in engineering design theory and methodology. Two main research areas: (1) feature-based representations for designed objects and (2) computer-based models of the mechanical design process.

Courses Offered: Advanced Mechanical Engineering Design I & II
Wide variety of courses in materials, manufacturing, mechanics, computer science, and other topics.

60. Offeror Name: University of Pittsburgh

Offeror Address: Dept. of Industrial Engineering
1046 Benedum Hall
Pittsburgh, PA 15261

Offeror Type : University

Program Type: MS; PhD

Program Title: Industrial Engineering

Orientaton: Operations Research; Engineering Management; Manufacturing Systems

Point of Contact: Dr. Mainak Mazumdar

Offeror Phone: (412) 624-9857

Audience: Individuals with BS in engineering or hard sciences (physics, mathematics, chemistry, or computer science).

Prerequisites: Undergraduate or graduate degree in engineering or hard sciences; GPA (Grade Point Average) of 3.0; Knowledge of probability and statistics, calculus, differential equations, linear algebra, and computer programming.

Comments: None.

Courses Offered: Contact University directly.

61. Offeror Name: University of Rhode Island

Offeror Address: Industrial and Manufacturing Engineering Dept.
103 Gilbreth Hall
Kingston, RI 02881-0805

Offeror Type : University

Program Type: MS

Program Title: Manufacturing Engineering

Orientaton: Design for Manufacture and Assembly (DFMA); Manufacturing Systems

Point of Contact: Dr. Geoffrey Boothroyd

Offeror Phone: (401) 792-2455

Audience: Undergraduates in Mechanical, Industrial or Electrical Engineering; Mathematics; Physics; or Business.

Prerequisites: Undergraduate degree in Mechanical, Industrial or Electrical Engineering; Mathematics; Physics; or Business. Contact Department for additional requirements.

Comments: None.

Courses Offered:
Advanced Statistical Methods for Research and Industry
Assembly and Handling Automation
Computer-Aided Manufacturing
Manufacturing Systems: Design Analysis and Simulation
Metal Deformation Processes
Network Application in Industrial Engineering
Product Design for Manufacturability
Production Control and Inventory Systems
Simulation
Statistical Quality Assurance
Theory of Machining and Machine Tools

62. Offeror Name: University of Southern California

Offeror Address: Industrial and Systems Engineering Dept.
OHE 400
Los Angeles, CA 90089-1452

Offeror Type : University

Program Type: MS

Program Title: Manufacturing Engineering Program

Orientaton: Manufacturing Engineering; Computer-Aided Manufacturing;
Computer-Aided Design; Design Engineering

Point of Contact: Dr. Behrokh Khoshnevis

Offeror Phone: None given.

Audience: Full or part-time students interested in pursuing a MS degree.

Prerequisites: GPA (Grade Point Average) of 3.0; BS or B.Eng. from an accredited school; Minimum GRE (Graduate Record Examination) of 1000 (Verbal + Quantitative); TOEFL (Test of English as a Foreign Language) of 550 for students whose first language is not English; 3 semesters of calculus; 3 semesters of science; introductory courses in computer programming, materials science, manufacturing processes, and engineering economy.

Comments: None.

Courses Offered:
Advanced Quality Control
Advanced Statistical Aspects of Engineering Reliability
Computer-Aided Manufacturing
Engineering Analysis of Manufacturing Enterprise
Statistical Quality Control

63. Offeror Name: University of Utah

Offeror Address: 3209 MEB
Salt Lake City, UT 84112-0000

Offeror Type : University

Program Type: BS; MS; PhD; Continuing Education

Program Title: Mechanical Engineering

Orientaton: Reliability in Design; Manufacturing Engineering; Safety; Design Methods

Point of Contact: James K. Strozier

Offeror Phone: (801) 581-6947

Audience: Undergraduate and graduate students.

Prerequisites: Undergraduate minimum GPA (Grade Point Average) - 2.7; graduate minimum GPA (Grade Point Average) - 3.0

Comments: None.

Courses Offered:
Advanced Computer-Aided Manufacturing
Computer-Aided Manufacturing
Reliability Engineering
Statistical Quality Control and Assurance
Statistics and Metrology

64. Offeror Name: University of Wichita

Offeror Address: Dept. of Industrial Engineering
Wichita, KS 67208

Offeror Type: University

Program Type: BS; MS; PhD

Program Title: Industrial Engineering

Orientaton: Human Factors; Operations Research; Manufacturing Engineering;
Systems

Point of Contact: Dr. Brian K. Lambert

Offeror Phone: (316) 689-3425

Audience: None stated.

Prerequisites: None stated.

Comments: None.

Courses Offered: Computer-Integrated Manufacturing
Engineering Management
Human Factors
Production Engineering
Queuing and Inventory Systems
Reliability and Maintainability
Statistical Quality Control

65. Offeror Name: University of Wisconsin - Madison Master Degree Program

Offeror Address: College of Engineering
1513 University Avenue
Madison, WI 53706-1572

Offeror Type : University

Program Type: MS

Program Title: Manufacturing Systems Engineering

Orientaton: Manufacturing Systems; Engineering Management; Factory Automation; Computer-Integrated Manufacturing (CIM)

Point of Contact: Marvin F. DeVries; Sue A. Helmich

Offeror Phone: (608) 262-0921

Audience: Individuals seeking MS degree in engineering in area of Manufacturing Systems.

Prerequisites: Undergraduate degree in engineering or its physical science equivalent; Undergraduate grade point average (GPA) of 3.00 (on a 4.00 scale) or above; Students with a BS Degree from a non-U.S. college or university must have high GRE (Graduate Record Examination) and TOEFL (Test of English as a Foreign Language) scores.

Comments: Recipient of the CASA/SME 1988 University LEAD Award for excellence in a CIM education program; Designation as a University of Wisconsin Center of Excellence, 1988-1993.

Courses Offered:
Computer-Integrated Manufacturing Systems: Design/Control
Inspection, Quality Control, and Reliability
Operations Management
Production Planning and Control
Simulation Modeling and Analysis of Industrial Engineering Systems
Tactical Decisions in Operations Management

66. Offeror Name: University of Wisconsin - Madison Center for Quality and Productivity Improvement

Offeror Address: Center for Quality and Productivity Improvement
610 Walnut St.
Madison, WI 53705

Offeror Type : University

Program Type: Continuing Education

Program Title: Engineering Professional Development

Orientaton: Design of Experiments; Taguchi; Quality; Productivity; Statistical Process Control (SPC)

Point of Contact: Thomas J. Snodgrass

Offeror Phone: (608) 263-2520

Audience: Varies by course. Contact Center directly.

Prerequisites: Vary by course. Contact Center directly.

Comments: None.

Courses Offered:
Designing Industrial Experiments: The Engineer's Key to Quality
Dynamic Statistical Process Control: Going Beyond Shewart
Explanation of Taguchi's Contributions to Quality Improvement
Management Overview of Modern Quality Methods
Statistical Design of Experiments for Engineers

67. Offeror Name: University of Wisconsin - Madison Center for Value Engineering Research

Offeror Address: Center for Value Engineering Research
432 North Lake St.
Madison, WI 53706

Offeror Type : University

Program Type: Continuing Education

Program Title: Value Engineering

Orientaton: Value Information; Team Participation; Five-Step Job Plan; Three-Phase Product Critical Path; Analytical Language

Point of Contact: Thomas J. Snodgrass

Offeror Phone: (608) 263-3371

Audience: Product Managers; Design Engineers; Marketing Specialists; Manufacturing Engineers; Cost Specialists.

Prerequisites: Value Engineering I or Customer-Oriented Product Development (VE II-Module I) for Cost-Oriented Product Development (VE II-Module II).

Comments: None.

Courses Offered:

Cost-Oriented Product Development (VE II-Module II) - 3.5 days
Customer Oriented Product Development (VE II-Module I) - 3 days
Designing Industrial Experiments - 4.5 days
Reducing Product Costs and Improving Customer Acceptance with the
VITAL System - 2 days
Value Engineering I - 5 days

68. Offeror Name: University of Wisconsin - Milwaukee Continuing Education Program

Offeror Address: Center for Continuing Engineering Education
929 North 6th Street
Milwaukee, WI 53203

Offeror Type : University

Program Type: Continuing Education

Program Title: Continuing Engineering Education

Orientaton: Simultaneous Engineering; Quality by Design; Statistical Process Control (SPC); Competitiveness

Point of Contact: Rick Albers

Offeror Phone: (414) 227-3125

Audience: Design Engineers; Manufacturing Engineers; Process Engineers; Quality Assurance Managers.

Prerequisites: None stated.

Comments: None.

Courses Offered: Manufacturing Competitiveness and Quality by Design
Simultaneous Engineering Methodology
Statistical Process Control
Strategic Justification
Total Quality Assurance

69. Offeror Name: Value Analysis, Inc.

Offeror Address: 4029 Westerly Place, Suite 116
Newport Beach, CA 92660

Offeror Type : Consultant

Program Type: Continuing Education Workshops

Program Title: Value Analysis/Value Engineering (Value Management) Workshop

Orientaton: Value Management; Cost Management; Change Management;
Quality

Point of Contact: John D. Groothuis

Offeror Phone: (714) 548-8018

Audience: Employees from engineering, manufacturing, purchasing, marketing,
and finance.

Prerequisites: None.

Comments: None.

Courses Offered:
Value Analysis/Value Engineering Workshop

70. Offeror Name: Virginia Polytechnic Institute and State University Master Degree Program

Offeror Address: College of Engineering
Blacksburg, VA 24061

Offeror Type : University

Program Type: MS

Program Title: Systems Engineering

Orientaton: Interdisciplinary program structured to include courses from engineering, computer science, business, etc., departments. Systems Engineering; Life-cycle Engineering; Systems Integration; System Effectiveness

Point of Contact: Prof. Benjamin S. Blanchard

Offeror Phone: (703) 231-5458

Audience: Full-time and/or part-time students interested in pursuing course work toward a master's degree.

Prerequisites: BS in some field of engineering or equivalent technical area. Refer to Graduate catalog for specific grade point and GRE (Graduate Record Examination) requirements.

Comments: Concurrent engineering is specifically addressed in the course "The Systems Engineering Process".

Courses Offered:

- Applied Systems Engineering
- Engineering Economy
- Management of Quality and Reliability
- Manufacturing Systems Engineering
- Operations Research
- Production Planning and Control
- Reliability Theory
- Statistical Theory of Quality Control
- Systems Engineering Process

71. Offeror Name: Virginia Polytechnic Institute and State University Continuing Education Program

Offeror Address: College of Engineering
Blacksburg, VA 24061

Offeror Type : University

Program Type: Continuing Education

Program Title: Engineering Extension

Orientaton: Systems Engineering; The Systems Engineering Process; Life-Cycle Engineering; Systems Integration; Systems Effectiveness

Point of Contact: Prof. Benjamin S. Blanchard

Offeror Phone: (703) 231-5458

Audience: Managers; Practicing Engineers; Technicians; Others from government/industrial sectors interested in subject matter.

Prerequisites: None.

Comments: None.

Courses Offered:
Engineering Economy
Logistics Engineering
Quality Control
Reliability and Maintainability
Statistics
Systems Engineering
Value Engineering

72. Offeror Name: Waterbury State Technical College

Offeror Address: 750 Chase Parkway
Waterbury, CT 06708

Offeror Type : College

Program Type: Associate Degree

Program Title: Quality Assurance Technology

Orientaton: Quality Assurance; Statistical Process Control (SPC); Reliability

Point of Contact: Stephen M. Colwell

Offeror Phone: (203) 575-8084

Audience: Industrial personnel employed in the quality field.

Prerequisites: Must be high school graduate.

Comments: None.

Courses Offered:

Design of Experiments
Manufacturing Processes
Quality Assurance Organization and Management
Reliability
Statistical Process Control
Statistical Process Improvement

73. Offeror Name: West Virginia University

Offeror Address: Dept. of Industrial Engineering
Morgantown, WV 26506

Offeror Type : University

Program Type: MS; PhD

Program Title: Manufacturing Systems Engineering

Orientaton: Manufacturing; Quality; Cost; Design

Point of Contact: Ralph W. Plummer, Chairman

Offeror Phone: (304) 293-5131

Audience: Engineers

Prerequisites: BS in Engineering, Math or Science.

Comments: None.

Courses Offered:

Advanced Engineering Economy
Advanced Manufacturing Processes
Advanced Problems in Manufacturing Engineering
Advanced Production Control
Applied Linear Programming
Computational Methods for Manufacturing Engineers
Computer-Integrated Manufacturing
Design of Industrial Experiments
Dynamic Programming
Industrial Quality Control
Inventory Theory
Materials and Processing Systems Design
Queuing Theory
Robotics and Flexible Automation
Special Topics in Manufacturing Processes and Automation

74. Offeror Name: Western Illinois University

Offeror Address: Dept. of Industrial Technology

Offeror Type : University

Program Type: BS; MS; Continuing Education

Program Title: Industrial Technology Program with emphasis in Manufacturing

Orientaton: Automation; Computer-Aided Design (CAD); Computer-Aided Manufacturing (CAM); Computer-Integrated Manufacturing (CIM); CNC; Electronics; Manufacturing; Robotics; Quality Control

Point of Contact: T. G. Bridge

Offeror Phone: (309) 298-1091

Audience: Undergraduate and graduate students primarily with additional services for manufacturing engineers.

Prerequisites: Prerequisites and entrance requirements depend upon individual program or course selected. Most continuing education courses have no prerequisites.

Comments: The program prepares students to begin careers that lead to manufacturing management positions in engineering, sales, design, estimating, planning, quality control, production or other manufacturing positions.

Courses Offered:

- Advanced Computer-Integrated Manufacturing
- Automated Controls and Computers
- Automated Industrial Production
- Computer-Aided Design
- Essentials of Computer-Integrated Manufacturing
- Fundamentals of Computer-Aided Manufacturing
- Industrial Robotics
- Manufacturing Process Control
- Production Systems

75. Offeror Name: Worcester Polytechnic Institute

Offeror Address: 100 Institute Rd.
Worcester, MA 01609-2280

Offeror Type : College

Program Type: BS; MS; PhD (concurrent engineering, etc.); Continuing Education

Program Title: Advanced Manufacturing Engineering

Orientaton: Control and Monitoring of Manufacturing Processes; Engineering Analysis of Manufacturing Processes; Design for Manufacturability; Computer-Integrated Manufacturing (CIM)

Point of Contact: Richard D. Sisson, Jr.

Offeror Phone: (508) 831-5335

Audience: BS engineers, computer scientists, scientists, and engineers, full-time graduate students, and continuing education students.

Prerequisites: BS in Engineering, Computer Science, Science, or Management.

Comments: WPI's Manufacturing Engineering Applications Center conducts contract work for industry in several related areas, including concurrent engineering.

Courses Offered: Computer-Integrated Manufacturing
Flexible Manufacturing Systems

OFFEROR TYPE INDEX

OFFEROR TYPE	OFFEROR NAME	PAGE
College	Erie Community College	15
	Glendale Community College	19
	Northeast Wisconsin Technical College	31
	South Suburban College	40
	Southern College of Technology	41
	Tulsa Junior College	44
	Waterbury State Technical College	72
	Worcester Polytechnic Institute	75
Consultant	Value Analysis, Inc.	69
Film and Video Distributor	Films Incorporated	16
Government	Air Force Institute of Technology (AFIT)	
	Continuing Education Program	1
	Air Force Institute of Technology (AFIT) Master Degree Program	2
Non-Profit Educational Association	Society for Computer-Aided Engineering	37
Not-for-Profit R&D Organization	Research Triangle Institute (RTI)	34
Private Institute	American Supplier Institute (ASI)	6
	Arthur Beard Engineers, Inc.	9
	GOAL/QPC	17
	Harnischfeger Institute	20
	Hobbs Engineering Corporation	21
	Institute for Competitive Design (ICD)	22
	International Defense Electronics Association (IDEA)	24
	Juran Institute, Inc.	25
	STAT-A-MATRIX Institute Master Degree Program	35
	STAT-A-MATRIX Institute	36
	Continuing Education Program	
	Tennessee Associates	42
	Tustin Technical Institute, Inc.	45

Professional Society	American Society for Quality Control (ASQC)	4
	American Society of Mechanical Engineers (ASME)	5
	Association for Quality and Participation (AQP)	10
	Institute of Industrial Engineers (IIE)	23
	Society of American Value Engineers (SAVE)	38
	Society of Manufacturing Engineers (SME)	39
University	Alfred University	3
	Arizona State University	7
	Continuing Education Program	
	Arizona State University Graduate Programs	8
	Clemson University	11
	Cornell University Master Degree Program	12
	Cornell University Continuing Education Program	13
	Cornell University Dean's Certificate Program	14
	Engineering	
	George Washington University	18
	Kansas State University	26
	Louisiana State University	27
	New Jersey Institute of Technology	28
	New Mexico State University	29
	North Carolina State University	30
	Oakland University	32
	Pennsylvania State University	33
	Texas Tech University	43
	University of Alabama in Huntsville	46
	University of Arizona	47
	Continuing Education Program	
	University of Arizona Master Degree Program	48
	University of Arkansas	49
	University of Bridgeport	50
	University of California at Los Angeles	51
	University of Dayton	52
	University of Florida	53
	University of Idaho	54
	University of Iowa	55

University of Maryland	56
Master and PhD Programs	
University of Maryland	57
- University College Continuing Education Program	
University of Massachusetts	58
at Amherst Industrial Engineering and Operations Research Program	
University of Massachusetts	59
at Amherst Mechanical Engineering Program	
University of Pittsburgh	60
University of Rhode Island	61
University of Southern California	62
University of Utah	63
University of Wichita	64
University of Wisconsin - Madison	65
Master Degree Program	
University of Wisconsin	66
- Madison Center for Quality and Productivity	
University of Wisconsin	67
- Madison Center for Value Engineering Research	
University of Wisconsin - Milwaukee	68
Continuing Education Program	
Virginia Polytechnic Institute and State University Master Degree Program	70
Virginia Polytechnic Institute and State University - Continuing Education Program	71
West Virginia University	73
Western Illinois University	74

PROGRAM TYPE INDEX

PROGRAM TYPE	OFFEROR NAME	PAGE
Associate Degree	Erie Community College	15
	Glendale Community College	19
	Northeast Wisconsin Technical College	31
	South Suburban College	40
	Tulsa Junior College	44
	Waterbury State Technical College	72
Bachelor of Science	Alfred University	3
	Clemson University	11
	Kansas State University	26
	Louisiana State University	27
	New Mexico State University	29
	Oakland University	32
	Southern College of Technology	41
	Texas Tech University	43
	University of Arkansas	49
	University of Florida	53
	University of Idaho	54
	University of Iowa	55
	University of Massachusetts at Amherst	58
	Industrial Engineering and Operations Research Programs	
	University of Utah	63
	University of Wichita	64
	Western Illinois University	74
	Worcester Polytechnic Institute	75
Certificate Programs	Cornell University Dean's Certificate Program	14
	Tulsa Junior College	44
	University of Idaho	54
Continuing Education	Air Force Institute of Technology (AFIT)	
	Continuing Education Program	1
	American Society for Quality Control (ASQC)	4
	American Society of Mechanical Engineers (ASME)	5
	American Supplier Institute (ASI)	6
	Arizona State University	7
	Continuing Education Program	
	Arthur Beard Engineers, Inc.	9
	Association for Quality and Participation (AQP)	10
	Clemson University	11

	Cornell University Continuing Education Program	13
	Films Incorporated	16
	GOAL/QPC	17
	George Washington University	18
	Harnischfeger Institute	20
	Hobbs Engineering Corporation	21
	Institute for Competitive Design (ICD)	22
	Institute of Industrial Engineers (IIE)	23
	International Defense Electronics Association (IDEA)	24
	Juran Institute, Inc.	25
	Research Triangle Institute (RTI)	34
	STAT-A-MATRIX Institute	36
	Continuing Education Program	
	Society for Computer-Aided Engineering	37
	Society of American Value Engineers (SAVE)	38
	Society of Manufacturing Engineers (SME)	39
	Tennessee Associates	42
	Tustin Technical Institute, Inc.	45
	University of Arizona	47
	Continuing Education Program	
	University of California at Los Angeles	51
	University of Dayton	52
	University of Iowa	55
	University of Maryland - University College	57
	Continuing Education Program	
	University of Utah	63
	University of Wisconsin - Madison	66
	Center for Quality and Productivity Improvement	
	University of Wisconsin - Madison	67
	Center for Value Engineering Research	
	University of Wisconsin - Milwaukee	68
	Continuing Education Program	
	Virginia Polytechnic Institute	71
	and State University Continuing Education Program	
	Value Analysis, Inc.	69
	Western Illinois University	74
Master of Engineering	Cornell University Master Degree Program	12
	Pennsylvania State University	33
Master of Science	Air Force Institute of Technology (AFIT) Master Degree Program	2

Alfred University	
Arizona State University	8
Graduate Programs	
Clemson University	11
Kansas State University	26
Louisiana State University	27
New Jersey Institute of Technology	28
New Mexico State University	29
Oakland University	32
Pennsylvania State University	33
STAT-A-MATRIX Institute	35
Master Degree Program	
Texas Tech University	43
University of Alabama in Huntsville	46
University of Arizona Master Degree Program	48
University of Arkansas	49
University of Bridgeport	50
University of Florida	53
University of Iowa	55
University of Maryland Master and PhD Programs	56
University of Massachusetts at Amherst	58
Industrial Engineering and Operations	
Research Program	
University of Massachusetts at Amherst	59
Mechanical Engineering Program	
University of Pittsburgh	60
University of Rhode Island	61
University of Southern California	62
University of Utah	63
University of Wichita	64
University of Wisconsin - Madison	65
Master Degree Program	
Virginia Polytechnic Institute and State University	70
Master Degree Program	
West Virginia University	73
Western Illinois University	74
Worcester Polytechnic Institute	75

PhD

Arizona State University Graduate Programs	8
Clemson University	11
Kansas State University	26
Louisiana State University	27
New Jersey Institute of Technology	28
New Mexico State University	29
North Carolina State University	30

	Oakland University	32
	Pennsylvania State University	33
	Texas Tech University	43
	University of Alabama in Huntsville	46
	University of Arkansas	49
	University of Florida	53
	University of Iowa	55
	University of Maryland	56
	Master and PhD Program	
	University of Massachusetts at Amherst	58
	Industrial Engineering and Operations	
	Research Program	
	University of Massachusetts at Amherst	59
	Mechanical Engineering Program	
	University of Pittsburgh	60
	University of Utah	63
	University of Wichita	64
	West Virginia University	73
	Worcester Polytechnic Institute	75
Post-Graduate	Air Force Institute of Technology (AFIT) Master	
	Degree Program	2

GEOGRAPHIC INDEX

STATE	OFFEROR	PAGE
Alabama	University of Alabama in Huntsville	46
Arizona	Arizona State University	7
	Continuing Education Programs	
	Arizona State University Graduate Programs	8
	Glendale Community College	19
	University of Arizona	47
	Continuing Education Program	
	University of Arizona Master Degree Program	48
Arkansas	University of Arkansas	49
California	International Defense Electronics Association (IDEA)	24
	Tustin Technical Institute, Inc.	44
	University of California at Los Angeles	51
	University of Southern California	62
	Value Analysis, Inc.	69
Colorado	Hobbs Engineering Corporation	21
Connecticut	Juran Institute, Inc.	25
	University of Bridgeport	50
	Waterbury State Technical College	72
District of Columbia	George Washington University	18
Florida	University of Florida	53
Georgia	Institute of Industrial Engineers	23
	Southern College of Technology	41
Idaho	University of Idaho	54
Illinois	Films Incorporated	16
	Society for Computer-Aided Engineering	37
	Society of American Value Engineers	38
	South Suburban College	40
	Western Illinois University	74

Iowa	University of Iowa	55
Kansas	Kansas State University	26
	University of Wichita	64
Louisiana	Louisiana State University	27
Maryland	University of Maryland	56
	Master and PhD Program	
	University of Maryland - University College Continuing Education Program	57
Massachusetts	GOAL/QPC	17
	University of Massachusetts at Amherst	58
	Industrial Engineering and Operations Research Program	
	University of Massachusetts at Amherst	59
	Mechanical Engineering Program Worcester Polytechnic Institute	75
Michigan	American Supplier Institute (ASI)	6
	Institute for Competitive Design (ICD)	22
	Oakland University	32
	Society of Manufacturing Engineers	39
New Jersey	New Jersey Institute of Technology	28
	STAT-A-MATRIX Institute	35
	Master Degree Program	
	STAT-A-MATRIX Institute Continuing Education Program	35
New Mexico	New Mexico State University	29
New York	Alfred University	3
	American Society of Mechanical Engineers	5
	Cornell University Master Degree Program	12
	Cornell University Continuing Education Program	13
	Cornell University Dean's Certificate Program	14
	Erie Community College	15
North Carolina	North Carolina State University	30
	Research Triangle Institute	34
Ohio	Air Force Institute of Technology	1

	Air Force Institute of Technology - Master Degree Program	2
	Association for Quality and Participation	10
	University of Dayton	52
Oklahoma	Tulsa Junior College	44
Pennsylvania	Pennsylvania State University	33
	University of Pittsburgh	60
Rhode Island	University of Rhode Island	61
South Carolina	Clemson University	11
Tennessee	Tennessee Associates	42
Texas	Texas Tech University	43
Utah	University of Utah	63
Virginia	Arthur Beard Engineers, Inc.	9
	Virginia Polytechnic Institute	70
	Master Degree Program	
	Virginia Polytechnic Institute	71
	Continuing Education Program	
West Virginia	West Virginia University	73
Wisconsin	American Society for Quality Control	4
	Harnischfeger Institute	20
	Northeast Wisconsin Technical College	31
	University of Wisconsin - Madison	65
	Master Degree Program	
	University of Wisconsin - Madison	66
	Center for Quality and Productivity Improvement	
	University of Wisconsin - Madison	67
	Center for Value Engineering Research	
	University of Wisconsin - Milwaukee	68
	Continuing Education Program	

INDEX OF COURSES OFFERED

COURSE NAME	OFFEROR NAME	PAGE
ADAS Management Overview Course ADAS User Training Course	Research Triangle Institute (RTI)	34
AI/Expert Systems and Manufacturing	Louisiana State University	27
Activating Management Support	Association for Quality and Participation (AQP)	10
Advanced Auditor Training Effective Communication and Auditing Techniques Program	STAT-A-MATRIX Institute Continuing Education	36
Advanced Biometry Advanced Quality Control	University of Massachusetts at Amherst Industrial Engineering and Operations Research Program	58
Advanced Computer-Aided Manufacturing	University of Utah	63
Advanced Computer-Integrated Manufacturing	Western Illinois University	74
Advanced Decision Theory	University of Maryland Master and PhD Programs	56
Advanced Engineering Economy	West Virginia University	73
Advanced Engineering Quality Control	University of Arizona Master Degree Program	48
Advanced Manufacturing Processes	North Carolina State University West Virginia University	30 73
Advanced Manufacturing Systems	Clemson University	11
Advanced Mechanical Engineering Design I & II	University of Massachusetts at Amherst Mechanical Engineering Program	59
Advanced Microprocessor Systems	New Jersey Institute of Technology	28

Advanced Problems in Manufacturing Engineering	West Virginia University	73
Advanced Product Assurance	University of Maryland Master and PhD Programs	56
Advanced Production Control	West Virginia University	73
Advanced Quality Control	Arizona State University Graduate Programs	8
	New Mexico State University	29
	Pennsylvania State University	33
	University of Southern California	62
Advanced Quality Engineering	American Supplier Institute (ASI)	6
Advanced Quality Function Deployment	GOAL/QPC	17
Advanced Reliability Engineering	University of Maryland Master and PhD Programs	56
Advanced Reliability Engineering (Maintainability Engineering)	University of Arizona Master Degree Program	48
Advanced Robotics - Analysis and Simulation	University of California at Los Angeles	51
Advanced Statistical Aspects of Engineering Reliability	University of Southern California	62
Advanced Statistical Methods for Research and Industry	University of Rhode Island	61
Advanced Statistical Process Control	Air Force Institute of Technology (AFIT) Continuing Education Program	1
Analysis of Technical Data	Southern College of Technology	41
Annual Reliability Engineering and Management Institute Annual Reliability Testing Institute	University of Arizona Continuing Education Program	47
Applied Linear Programming	West Virginia University	73

Applied Maintainability, Availability and Operational Readiness Engineering	University of California at Los Angeles	51
Applied Maintainability and Availability Engineering	University of Dayton	52
Applied Probability and Statistics	University of Maryland Master and PhD Programs	56
Applied Reliability, Life, and Accelerated Testing	University of Maryland University College Continuing Education Program	57
Applied Reliability Engineering	University of Dayton	52
Applied Reliability Engineering and Testing	University of California at Los Angeles	51
Applied Systems Engineering	Virginia Polytechnic Institute State University Master Degree Program	70
Applying Just-in-Time in the American Environment	Institute of Industrial Engineers (IIE)	23
Artificial Intelligence	University of Arkansas	49
Artificial Intelligence in Manufacturing	University of Iowa	55
Assembly and Handling Automation	University of Rhode Island	61
Auditing Nuclear Quality Assurance Programs/Lead Auditor Training	STAT-A-MATRIX Institute Continuing Education Program	36
Automated Controls and Computer Automated Industrial Production	Western Illinois University	74
Automated Quality	Society of Manufacturing Engineers (SME)	39
Automatic Control Systems	Oakland University	32
Automatic Testing and Inspection	Society of Manufacturing Engineers (SME)	39

Automobile Safety (Crash) Testing Automotive Vibration and Shock Testing and Measurement Avoiding Thermal Overdesign	Tustin Technical Institute, Inc.	45
Basic Facilitator Development Course	Association for Quality and Participation (AQP)	10
Basic Probability for Engineers	University of Massachusetts at Amherst Industrial Engineering and Operations Research Program	58
Basic Reliability Analysis Basic Reliability Engineering	University of Maryland Master and PhD Program	56
Basic Statistical Concepts	American Supplier Institute (ASI)	6
Basic Statistics and Statistical Process Control	Erie Community College	15
Basic Value Analysis (Independent Study Course administered by the Miles Foundation)	Society of American Value Engineers (SAVE)	38
Basics of SPC	Arizona State University Continuing Education Programs	7
Bayesian Reliability Analysis	University of Maryland Master and PhD Program	56
Blueprint Reading	Tulsa Junior College	44
Climatic Environmental Test Methods	Tustin Technical Institute, Inc.	45
Company Wide Quality Deployment	Harnischfeger Institute	20
Computational Methods for Manufacturing Engineers	West Virginia University	73
Computer-Aided Acquisition and Logistic Support (CALS)- Elements and Applications	University of California at Los Angeles	51

Computer-Aided Design	Western Illinois University	74
Computer-Aided Design for Manufacturing	Pennsylvania State University	33
Computer-Aided Engineering for Product Design	Society of Manufacturing Engineers (SME)	39
Computer-Aided Manufacturing	University of Rhode Island	61
	University of Southern California	62
	University of Utah	63
Computer-Aided Manufacturing and Control	Arizona State University Graduate Programs	8
Computer-Assisted Processes	University of Arkansas	49
Computer-Integrated Design Applications	Arizona State University Graduate Programs	8
Computer-Integrated Manufacturing	University of Arkansas	49
	University of Iowa	55
	University of Wichita	64
	West Virginia University	73
	Worcester Polytechnic Institute	75
Computer-Integrated Manufacturing Systems- Design/Control	University of Wisconsin - Madison Master Degree Program	65
Computer Integration in Manufacturing Systems	North Carolina State University	30
Concurrent Engineering (CE)	International Defense Electronics Association (IDEA)	24
Concurrent Engineering and Factory Automation	University of California at Los Angeles	51
Concurrent Engineering as a Cornerstone for TQM	International Defense Electronics Association (IDEA)	24
Concurrent Product Process Development	Harnischfeger Institute	20

Contractual Aspects of Value Engineering	Air Force Institute of Technology (AFIT) Continuing Education Program	1
Contractual Aspects of Value Engineering (Video Tape)	Society of American Value Engineers (SAVE)	38
Cost-Oriented Product Development (VE II-Module II) - 3.5 days	University of Wisconsin - Madison Center for Value Engineering Research	67
Cost Reduction and Reliability Improvement via Screening Technology	Hobbs Engineering Corporation	21
Creating the Quality System	Tennessee Associates	42
Customer-Driven Quality	American Society for Quality Control (ASQC)	4
Customer-Oriented Product Development (VE II-Module I) - 3 days	University of Wisconsin - Madison Center for Value Engineering Research	67
Deming Library	Films Incorporated	16
Design and Analysis of Experiments	University of Alabama in Huntsville	46
Design for Assembly	American Supplier Institute (ASI)	6
Design for Maintainability and Life Cycle Costs	International Defense Electronics Association (IDEA)	24
Design for Manufacturability	Society of Manufacturing Engineers (SME)	39
Design for Manufacturability/Assembly	International Defense Electronics Association (IDEA)	24
Design for Production	University of Massachusetts at Amherst Industrial Engineering and Operations Research Program	58
Designing Industrial Experiments - 4.5 days	University of Wisconsin - Madison Center for Value	67

	Engineering Research	
Designing Industrial Experiments; The Engineer's Key to Quality	University of Wisconsin - Madison Center for Quality and Productivity Improvement	66
Designing for Quality	Tennessee Associates	42
Design of Experiments	Cornell University Master Degree Program	12
	University of Massachusetts at Amherst Industrial Engineering and Operations Research Program	58
	Waterbury State Technical College	72
Design of Experiments, Optimization Responses, Surface Methodologies, and Taguchi Methodology	Arizona State University	7
	Continuing Education Program	
Design of Human-Computer Systems	Clemson University	11
Design of Industrial Experiments	American Society for Quality Control (ASQC)	4
	West Virginia University	73
Design of Production Systems	North Carolina State University	30
	University of Massachusetts at Amherst Industrial Engineering and Operations Research Program	58
Design of Work Methods	University of Iowa	55
Developing a Company-Wide Continuous Improvement Master Plan	GOAL/QPC	17
Digital Simulation Techniques	University of Florida	53
Discrete Systems Simulation	Clemson University	11
Dynamic Programming	West Virginia University	73
Dynamic Statistical Process Control- Going Beyond Shewart	University of Wisconsin - Madison Center for Quality and Productivity Improvement	66

Effective Supplier Evaluation and Auditing	STAT-A-MATRIX Institute Continuing Education Program	36
Electrochemistry - Principles and Applications Electromagnetic Field Theory	New Jersey Institute of Technology	28
Enabling Computer-Based Technologies	International Defense Electronics Association (IDEA)	24
Engineering Analysis of Manufacturing Enterprise	University of Southern California	62
Engineering Economy	Alfred University	3
	Arizona State University Graduate Programs	8
	Virginia Polytechnic Institute and State University Master Degree Program	70
	Virginia Polytechnic Institute and State University - Continuing Education	71
Engineering Management	University of Wichita	64
Engineering Probability and Statistics	Oakland University	32
Engineering Quality Control	University of Arizona Master Degree Program	48
Engineering Reliability	University of Alabama in Huntsville	46
Engineering Statistics	Arizona State University Graduate Programs	8
	Texas Tech University	43
Engineering Statistics (includes design of experiments)	Alfred University	3
Engineering for Production	Pennsylvania State University	33
Essentials of Computer-Integrated Manufacturing	Western Illinois University	74
Evaluation of Function, Cost &	Society of American	38

Worth (Training Film)	Value Engineers (SAVE)	
Executive Course in Managing for Consistency	Tennessee Associates	42
Experimental Design	University of Massachusetts at Amherst Industrial Engineering and Operations Research Program	58
Experimental Design in Engineering	Pennsylvania State University	33
Explanation of Taguchi's Contributions to Quality Improvement	University of Wisconsin - Madison Center for Quality and Productivity Improvement	66
Failure Analysis Lab. Failure Mechanisms and Effects Lab.	University of Maryland Master and PhD Programs	56
Feedback Amplifiers I & II	New Jersey Institute of Technology	28
Flexible Manufacturing Systems	Worcester Polytechnic Institute	75
Foundations of Computer-Aided Design	Oakland University	32
Fundamentals of Computer-Aided Manufacturing	Western Illinois University	74
Fundamentals of Dimensional Measurements	Tulsa Junior College	44
Getting Started - Minimizing and Risk Government Initiatives	International Defense Electronics Association (IDEA)	24
Group Process Consultation- Applications for Participative Managers	Association for Quality and Participation (AQP)	10
High-Level Acoustic Testing	Tustin Technical Institute, Inc.	45
Hoshin Planning	American Society for Quality Control (ASQC) GOAL/QPC	4 17

Hoshin Planning - Executive Overview	GOAL/QPC	17
Human Factors	University of Wichita	64
Human Factors/Ergonomics	University of Arkansas	49
Human Factors Engineering	Clemson University	11
Human Reliability Analysis	University of Maryland Master and PhD Programs	56
I Know It When I See It If Japan Can...Why Can't We?	Films Incorporated	16
Implementing Continuous Quality Improvement	George Washington University	18
Implementing Dr. Deming's Methods for Management of Productivity and Quality		
Implementing Statistical Process Improvement		
Implementing Statistical Process Control	STAT-A-MATRIX Institute	36
Implementing a Vendor Quality Improvement System	Continuing Education Program	
Improving Quality and Productivity During Manufacturing Using Statistical Analysis	GOAL/QPC	17
Improving Systems in the Service Industry	Institute of Industrial Engineers (IIE)	23
Improving the Bottom Line - Success Through Service Quality		
Improving Quality and Productivity	GOAL/QPC	17
Increasing White Collar Productivity - Lessons in Lifelong Quality Improvement	Institute of Industrial Engineers (IIE)	23
Independent Research	New Jersey Institute of Technology	28
Industrial Quality Control	Clemson University	11

	West Virginia University	73
Industrial Robotics	Western Illinois University	74
Industrial Statistical Decisions (includes quality function deployment)	Alfred University	3
Inspection, Quality Control, and Reliability	University of Wisconsin - Madison Master Degree Program	65
Inspection Principals	Tulsa Junior College	44
Inspection Standards	Northeast Wisconsin Technical College	31
Integrated Circuits I	New Jersey Institute of Technology	28
Integrated Logistic Support (ILS) - Elements and Applications	University of California at Los Angeles	51
Integrated Product Design	Cornell University Continuing Education Program	13
Integrated Production Control	Arizona State University Graduate Programs	8
Integrating Taguchi into Quality Engineering	GOAL/QPC	17
Intermediate Biometry	University of Massachussetts at Amherst	58
Intermediate SPC	STAT-A-MATRIX Institute Continuing Education Program	36
Introduction to Industrial Engineering	Institute of Industrial Engineers (IIE)	23
Introduction to Manufacturing	New Mexico State University	29
Introduction to Quality Control	Tulsa Junior College	44
Introduction to Quality Engineering	American Supplier Institute (ASI)	6

Introduction to Value Analysis and Value Engineering (Correspondence Course)	Society of American Value Engineers (SAVE)	38
Introduction to Value Analysis and Value Engineering for Architects, Engineers, and Builders (Independent Study Course)		
Inventory Theory	West Virginia University	73
Journey to Excellence	Films Incorporated	16
Juran on Quality Leadership	Films Incorporated	16
Kaizen - The Process of Continuous Improvement	Association for Quality and Participation (AQP)	10
Keeping the Competitive Edge with Value Analysis (Video Tape)	Society of American Value Engineers (SAVE)	38
Linear Systems	New Jersey Institute of Technology	28
Logistics Engineering	Virginia Polytechnic Institute and State University Continuing Education Program	71
Maintenance Management for Productivity	Institute of Industrial Engineers (IIE)	23
Making Quality Happen - Upper's Management's Role	Juran Institute, Inc.	25
Management Overview of Modern Quality Methods	University of Wisconsin - Madison Center for Quality and Productivity Improvement	66
Management of Quality	Juran Institute, Inc.	25
Management of Quality and Reliability	Virginia Polytechnic Institute and State University Master Degree Program	70
Managing for Consistency	Tennessee Associates	42
Managing for Quality	American Society for Quality Control (ASQC)	4

Managing the Next Generation of Manufacturing Technology	Cornell University Continuing Education Program	13
Managing the Quality Function	Arizona State University Continuing Education Program	7
Manufacturing - A Competitive Weapon (Video Tape)	Society of American Value Engineers (SAVE)	38
Manufacturing Automation	University of Arkansas	49
Manufacturing Competitiveness and Quality by Design	University of Wisconsin - Milwaukee Continuing Education Program	68
Manufacturing I (includes value engineering) Manufacturing II (includes simultaneous engineering, producibility engineering and design for assembly)	Alfred University	3
Manufacturing Process Control	Western Illinois University	74
Manufacturing Processes	Waterbury State Technical College	72
Manufacturing Processes I Manufacturing Processes II	Texas Tech University	43
Manufacturing Strategy	Films Incorporated	16
Manufacturing Systems	University of Iowa	55
Manufacturing Systems - Design Analysis and Simulation	University of Rhode Island	61
Manufacturing Systems Design and Evaluation	University of California at Los Angeles	51
Manufacturing Systems Engineering	Virginia Polytechnic Institute and State University Master Degree Program	70
Manufacturing and Automation	Louisiana State University	27
Material Handling	University of Arkansas	49

Materials and Processing Systems Design	West Virginia University	73
Measurement Uncertainty	American Society of Mechanical Engineers (ASME)	5
Mechanical Dynamic Measurements	Tustin Technical Institute, Inc.	45
Mechanical Reliability and Probabilistic Design for Reliability	University of Maryland - University College Continuing Education Program	57
Metal Deformation Processes	University of Rhode Island	61
Methods Engineering	New Mexico State University	29
	University of Arkansas	49
Methods for Management of Productivity and Quality	GOAL/QPC	17
Methods of Engineering Analysis	University of Maryland Master and PhD Programs	56
Metrology	Southern College of Technology	41
Microprocessor Programs and Methods for Integrated Logistics Systems	University of Maryland - University College Continuing Education Program	57
Modern Control Design	Oakland University	32
Modern Manufacturing/Production Systems	University of Alabama in Huntsville	46
Modern Trends in QA	Southern College of Technology	41
Network Application in Industrial Engineering	University of Rhode Island	61
Noise in Electrical Circuits	New Jersey Institute of Technology	28
Non-Destructive Examination Principles	Tulsa Junior College	44

On-line Quality Control	American Supplier Institute (ASI)	6
Operations Management	University of Wisconsin - Madison Master Degree Program	65
Operations Research	Virginia Polytechnic Institute and State University Master Degree Program	70
Organization and Re-Orientation - the Team Approach	International Defense Electronics Association (IDEA)	24
Overview of Quality Engineering Techniques	STAT-A-MATRIX Institute Continuing Education Program	36
Philosophies of Quality Management	STAT-A-MATRIX Institute Master Degree Program	35
Physics of Failure of Solid State Devices	University of Maryland Master and PhD Programs	56
Planning and Integration of CE	International Defense Electronics Association (IDEA)	24
Planning for Quality	Juran Institute, Inc.	25
Power System Dynamics and Stability	New Jersey Institute of Technology	28
Practical Experiment Design Beyond Taguchi Techniques	STAT-A-MATRIX Institute Continuing Education Program	36
Practical Problems in Quality Quality Assurance	Northeast Wisconsin Technical College	31
Practical Reliability Engineering Methods Practical Sampling Techniques	STAT-A-MATRIX Institute Continuing Education Program	36
Probability and Statistics	University of Massachusetts at Amherst Industrial Engineering and Operations Research Program	58
Probability and Statistics I	Southern College of Technology	41

Process Improvement by Acceptance Sampling	STAT-A-MATRIX Institute Continuing Education Program	36
Procurement Quality	American Society for Quality Control (ASQC)	4
Product Assurance	University of Alabama in Huntsville	46
Product Design for Assembly	Society of Manufacturing Engineers (SME)	39
Product Design for Manufacturability	University of Rhode Island	61
Product Design for Manufacture	Louisiana State University	27
Product Design for Manufacturing	Society of Manufacturing Engineers (SME)	39
Product Liability for Engineers	American Society of Mechanical Engineers (ASME)	5
Production Control and Inventory Systems	University of Rhode Island	61
Production Engineering	University of Wichita	64
Production Planning and Control	University of Arkansas University of Wisconsin - Madison Master Degree Program Virginia Polytechnic Institute and State University Master Degree Program	49 65 70
Production Systems	Oakland University University of Iowa Western Illinois University	32 55 74
Production Systems Control Production Systems Synthesis	New Mexico State University	29
Program Management	Louisiana State University	27
Program and Project Management -	University of	51

Principles and Practice	California at Los Angeles	
Project Management for Engineers	American Society of Mechanical Engineers (ASME)	5
Protection of Power Systems	New Jersey Institute of Technology	28
Protective Packaging	Tustin Technical Institute, Inc.	45
Quality Assurance	University of Alabama in Huntsville	46
Quality Assurance Applications	Southern College of Technology	41
Quality Assurance Concepts		
Quality Assurance Management		
Quality Assurance Organization and Management	Waterbury State Technical College	72
Quality Assurance Systems Requirements, 1989 and Beyond	STAT-A-MATRIX Institute Continuing Education Program	36
Quality Assurance and Engineering Statistics II	Texas Tech University	43
Quality Assurance for Computer Software	STAT-A-MATRIX Institute Continuing Education Program	36
Quality Assurance for the Operating Phase of Nuclear Power Plants		
Quality Assurance in Regulated and Non-Regulated Industries	STAT-A-MATRIX Institute Master Degree Program	35
Quality Audit	American Society for Quality Control (ASQC)	4
Quality Auditing as a Management Function	STAT-A-MATRIX Institute Master Degree Program	35
Quality Concepts	Northeast Wisconsin Technical College	31
Quality Connection	Films Incorporated	16

Quality Control	New Mexico State University	29
	University of Iowa	55
	Virginia Polytechnic Institute	71
	and State University - Continuing Education Program	
Quality Control/Reliability	University of Arkansas	49
Quality Control Management	Air Force Institute of Technology (AFTT) Master Degree Program	2
Quality Control Theory and Planning	Northeast Wisconsin Technical College	31
Quality Control and Reliability	Pennsylvania State University	33
Quality Control in Automation	Society of Manufacturing Engineers (SME)	39
Quality Costs	American Society for Quality Control (ASQC)	4
Quality Costs, Surveys, and Audits	Tulsa Junior College	44
Quality Engineering	American Society for Quality Control (ASQC)	4
	Clemson University	11
	North Carolina State University	30
Quality Engineering Management	STAT-A-MATRIX Institute Master Degree Program	35
Quality Engineering by Design - The Taguchi Approach	American Society of Mechanical Engineers (ASME)	5
Quality Function Deployment	American Society for Quality Control (ASQC)	4
	American Supplier Institute (ASI)	6
	Harnischfeger Institute	20
Quality Function Deployment (QFD) and Taguchi Methods	George Washington University	18
Quality Function Deployment - Executive Overview	GOAL/QPC	17

Quality Function Deployment
Practitioner/Facilitator Course

Quality Improvement Seminar

Air Force Institute of Technology (AFIT)
Continuing Education Program

Quality Loss Function

American Supplier Institute (ASI) 6

Quality Man

Films Incorporated 16

Quality Management

Arizona State University
Graduate Programs 8

Quality Management for Marketing
and Sales

Tennessee Associates 42

Quality Program Preparation and Audit

STAT-A-MATRIX Institute
Continuing Education Program 36

Quality Standards and Specifications

Tulsa Junior College 44

Quality and Productivity Improvement
Team Process

Air Force Institute of
Technology (AFIT) Continuing
Education Program 1

Quality by Design

George Washington University 18

Quantitative Approach to Software
Management and Engineering

University of Maryland
Master and PhD Programs 56

Queuing Theory

West Virginia University 73

Queuing and Inventory Systems

University of Wichita 64

Queuing and Quality Control

University of Massachusetts at
Amherst Industrial Engineering
and Operations Research Program 58

Random Signal Analysis I

New Jersey Institute of Technology 28

Reducing Noise and Vibration

Tustin Technical Institute, Inc. 45

Reducing Product Costs and
Improving Customer Acceptance
with the VITAL System - 2 days

University of Wisconsin - Madison
Center for Value
Engineering Research 67

Refresher for COE Examination	STAT-A-MATRIX Institute	36
Refresher for CRE Examination	Continuing Education Program	
Reliability Engineering		
Refresher for Certified Auditor Examination		
Reliability	Air Force Institute of Technology (AFTT)	1
	Continuing Education Program	
	George Washington University	18
	New Mexico State University	29
	Waterbury State Technical College	72
Reliability, Availability, and Maintainability	University of Alabama in Huntsville	46
Reliability, Availability, and Serviceability	Arizona State University Graduate Programs	8
Reliability Assurance and Engineering Statistics III	Texas Tech University	43
Reliability Engineering	American Society for Quality Control (ASQC)	4
	Clemson University	11
	North Carolina State University	30
	Pennsylvania State University	33
	University of Arizona Master Degree Program	48
	University of Florida	53
	University of Utah	63
Reliability Engineering Seminar	University of Maryland Master and PhD Programs	56
Reliability Evaluation Techniques	Arizona State University Graduate Programs	8
Reliability Testing	University of Arizona Master Degree Program	48
Reliability Theory	Virginia Polytechnic Institute and State University Master Degree Program	70

Reliability Theory and Practice	University of Iowa	55
Reliability and Maintainability	University of Wichita	64
	Virginia Polytechnic Institute and State University - Continuing Education Program	71
Reliability and Maintainability Design in System Acquisition Education Program	Air Force Institute of Technology (AFIT) Continuing	1
Reliability and Maintainability Engineering	University of Maryland Master and PhD Programs	56
Reliability and Maintainability Management	Air Force Institute of Technology (AFIT) Master Degree Program	2
Reliability and Maintainability Research and Applications	Air Force Institute of Technology (AFIT) Continuing Education Program	1
Reliability and Maintenance	Air Force Institute of Technology (AFIT) Master Degree Program	2
Reliability in Electronics	New Jersey Institute of Technology	28
Reliability in Product Design and Testing	American Supplier Institute (ASI)	6
Reliability of Repairable Systems - Analysis and Applications	University of Maryland - University College Continuing Education Program	57
Reliable Design of Electronic Packages Risk Assessment for Engineers	University of Maryland Master and PhD Programs	56
Robotics and Flexible Automation	West Virginia University	73
SPC and Design of Experiments for Managers	Arizona State University Continuing Education Program	7
SPC for Continuous Process SPC for Job Shops and Short Runs	STAT-A-MATRIX Institute Continuing Education Programs	36

Self-Managing Teams - Their Design and Implementation	Association for Quality and Participation (AQP)	10
Semiconductor Circuits Semiconductor Devices Seminar on Reliability Problems	New Jersey Institute of Technology	28
Seven Tools for Management and Planning	GOAL/QPC	17
Short Cycle Manufacturing	Harnischfeger Institute	20
Simulation	University of Arkansas University of Rhode Island	49 61
Simulation - Improving Your Manufacturing Productivity	Institute of Industrial Engineers (IIE)	23
Simulation Modeling and Analysis of Industrial Engineering Systems	University of Wisconsin - Madison Master Degree Program	65
Simultaneous Engineering	Society of Manufacturing Engineers (SME)	39
Simultaneous Engineering Methodology	American Society of Mechanical Engineers (ASME)	5
Simultaneous Engineering Methodology	University of Wisconsin - Milwaukee Continuing Education Program	68
Software Quality Assurance	American Society for Quality Control (ASQC)	4
Special Problems in Reliability Engineering	University of Maryland Master and PhD Programs	56
Special Topics in Manufacturing Processes and Automation	West Virginia University	73
Statistical Analysis for Quality Management	STAT-A-MATRIX Institute Master Degree Program	35
Statistical Design of Experiments	American Society of Mechanical Engineers (ASME)	5

	Society of Manufacturing Engineers (SME)	39
Statistical Design of Experiments for Engineers	University of Wisconsin - Madison Center for Quality and Productivity Improvement	66
Statistical Methods in Quality and Reliability Control	Cornell University Dean's Certificate Program	14
Statistical Process Control	Air Force Institute of Technology (AFIT) Continuing Education Program	1
	Alfred University	3
	Cornell University Master Degree Program	12
	Erie Community College	15
	Northeast Wisconsin Technical College	31
	University of Wisconsin - Milwaukee Continuing Education Program	68
	Waterbury State Technical College	72
	Society of Manufacturing Engineers (SME)	39
Statistical Process Control II	South Suburban College	40
Statistical Process Improvement	Waterbury State Technical College	72
Statistical Process Planning	Society of Manufacturing Engineers (SME)	39
Statistical Process Quality Control	American Society for Quality Control (ASQC)	4
Statistical Process and Controls	Harnischfeger Institute	20
Statistical Quality Assurance	University of Rhode Island	61
Statistical Quality Control	Oakland University	32
	Southern College of Technology	41
	Tulsa Junior College	44
	University of Alabama in Huntsville	46
	University of Massachusetts at Amherst Industrial Engineering and Operations	68

	Research Program	
	University of Southern California	62
	University of Wichita	64
Statistical Quality Control and Assurance	University of Utah	63
Statistical Theory of Quality Control	Virginia Polytechnic Institute and State University Master Degree Program	70
Statistical Theory of Reliability and Applications	New Jersey Institute of Technology	28
Statistical Thinking for Manufacturing Process Control	American Supplier Institute (ASI)	6
Statistics	Virginia Polytechnic Institute and State University - Continuing Education	71
Statistics and Metrology	University of Utah	63
Statistics for Manufacturing	Cornell University - Dean's Certificate Program	14
Statistics in Design and Process Control	Arizona State University Continuing Education Program	7
Stochastic Systems Analysis	University of Florida	53
Strategic Justification	University of Wisconsin - Milwaukee Continuing Education Program	68
Strategies for Quality Management	STAT-A-MATRIX Institute Master Degree Program	35
Structural Reliability	University of Maryland Master and PhD Programs	56
Supplier Quality Management	George Washington University	18
System Safety Engineering	University of Maryland Master and PhD Programs	56
System Safety Principles and Practice	University of California	51

	at Los Angeles	
Systems Design and Optimization	Oakland University	32
Systems Engineering	Virginia Polytechnic Institute and State University - Continuing Education	71
Systems Engineering Process	Virginia Polytechnic Institute and State University Master Degree Program	70
Systems Engineering and Integration	University of California at Los Angeles	51
Systems Modeling	Clemson University	11
Systems Reliability and Maintainability	STAT-A-MATRIX Institute Continuing Education Programs	36
Systems Synthesis and Design	New Mexico State University	29
Tactical Decisions in Operations Management	University of Wisconsin - Madison Master Degree Program	65
Taguchi Methods	Harnischfeger Institute	20
Taguchi Methods - Executive Awareness	American Supplier Institute (ASI)	6
Taguchi Methods - Introduction to Measurement Engineering		
Taguchi Methods Problem Solving Workshop		
Teachings of the Gurus - Deming, Juran and Crosby	STAT-A-MATRIX Institute Continuing Education Programs	36
Team Facilitator Training	Tennessee Associates	42
Testing and Quality Control	Southern College of Technology	41
Theory of Machining and Machine Tools	University of Rhode Island	61
Thermal Climatic Testing	Tustin Technical Institute, Inc.	45

Time & Motion Study Fundamentals Total Productive Maintenance	Institute of Industrial Engineers (IIE)	23
Total Quality	Air Force Institute of Technology (AFIT) Continuing Education Program	1
Total Quality Assurance	University of Wisconsin - Milwaukee Continuing Education Program	68
Total Quality Management	George Washington University	18
Total Quality Management - Principles, Tools and Applications	University of California at Los Angeles	51
Total Quality Management Workshop	Air Force Institute of Technology (AFIT) Master Degree Program	2
Total Quality Management Systems	Association for Quality and Participation (AQP)	10
Total Quality Management Through STAT-A-MATRIX	STAT-A-MATRIX Institute Continuing Education Programs	36
Total Quality and Productivity Management	Institute of Industrial Engineers (IIE)	23
Train the Trainer in Statistical Design of Experiments (DOX)	Arizona State University Continuing Education Program	7
U.S. International Competitiveness	Cornell University - Continuing Education Program	13
Understanding Industrial Experimentation	GOAL/QPC	17
Value - The Success Criterion (video tape)	Society of American Value Engineers (SAVE)	38
Value Analysis/Value Engineering Workshop	Value Analysis, Inc.	69

Value Engineering	Virginia Polytechnic Institute and State University - Continuing Education Program	71
Value Engineering - A Course for Educational and Professional Development (Video Tape)	Society of American Value Engineers (SAVE)	38
Value Engineering During Design of Mass Transit Facilities Value Engineering Workshop Value Engineering Workshop for Highway Engineers Value Engineering - Executive Seminar	Arthur Beard Engineers, Inc.	9
Value Engineering I - 5 days	University of Wisconsin - Madison Center for Value Engineering Research	67
Value Engineering in Manufacturing	American Society of Mechanical Engineers (ASME)	5
Value-Oriented Creative Thinking (Training Film) Value-Oriented Paperwork Management (Training Film)	Society of American Value Engineers (SAVE)	38
Vibration and Shock Test Fixture Design Vibration and Shock Testing, Measurement, Analysis and Calibration	Tustin Technical Institute, Inc.	45
Why Quality	Films Incorporated	16
Winning Manufacturing Work Measurement Techniques	Institute of Industrial Engineers (IIE)	23

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